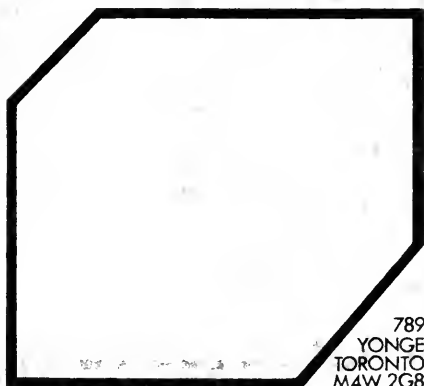


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THE
CANADIAN HORTICULTURIST,

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VOLUME IV.

EDITOR:

D. W. BEADLE.

...

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INDEX

TO THE

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VOL. IV.-1881.

A.		Page.
Action of Frost	86	
Acton Scott Peach	134	
Agricultural Commission	63	
Althea	85	
Alexander Peach	133	
Amaryllis Culture	91	
American Evergreens	32	
American Holly	28	
Ampelopsis	28	
Amuden Peach	133	
Apples, How disposed of	1	
Apples in Cold Climates	185	
Apples too Tender	186	
Apples almost Hardy	186	
Apples hardy and Good	187	
Arnold's hybrid Raspberry	30	
Arnold's Beauty Apple	36	
Arnold's Pride Strawberry	170	
Atlanta Peach	135	
Autumn Planting	14	
Autumn Berries	26	
Australian Commission	91	
B.		
Bees Cutting Grapes	7	
Berberry	27, 59	
Beaconsfield Grape	79	
Bedding-out	96	
Ben Davis Apple	108, 187	
Belle Coquette Peach	134	
Belle de Doue	134	
Belle de la Croix	134	
Belle de Beauce	134	
Bitter Sweet	28	
Black Walnut	20, 51, 103	
Black Knot	137, 143	
Black Oak	161	
C.		
Carbolic Acid	43	
Caroline Raspberry	128	
Carmine Peach	136	
Carpenter's White	136	
Captain Jack Strawberry	153	
Cellini Apple	37	
Champion Grape	22, 79	
Clarke's Raspberry	128, 155	
Clematis	172	
Cox Orange Pippin	36	
Codlin Moth	80, 157, 171	
Coolidge's Fav't Peach	134	
Conklin Peach	135	
Cole's Early Red peach	135	
Comet peach	136	
Colonel Cheney Strawberry	154	
Crescent Seedling	112, 153	
Crimson Garlande peach	135	
Cranberry Pippin	68	
Cuthbert Raspberry	24, 129, 155	
Cumberland Triumph	113, 153	
Currants	156	
Cut-Leaved Sumach	172	
D.		
Dagmar Peach	135	
Dempsey Potato	25, 189	
De Graw's White Peach	136	

	Page.		Page.
Delaney Heath Cling Peach.....	136	Glendale Strawberry	113, 154
Dogwood	28	Gladiolus	168
Downing Gooseberry.....	31	Goshawk Peach	135
Doct. Reeder Peach	92	Goodale Pear	37
Doyenne d'ete Pear	120	Gooseberries.....	31, 156
Doolittle's Raspberry	129	Grape Sugar.....	5
Downing Peach	137	Grapes, Early	7
Drying Fruit	40	Grand Sultan	37, 127
Druid Hill Peach	136	Grand Duke Constantine	37, 127
Duncan Strawberry	154	Grapes,	40, 77, 144, 147
Duchess of Oldenburg	187	Grafting	78
E.		Grapes in the Ottawa.....	177
Early Grapes	7	Greenfield Plum	181
Early Pears	7	Gregg Raspberry	24, 129, 156
Early Canada Strawberry.....	114	Grimes' Golden Pippin	35, 99
Early Beatrice Peach.....	134	Grosse Mignonne.....	134
Early Louisa Peach	134	H.	
Early Rivers Peach	134	Haas Apple	36
Early Leopold Peach.....	134	Hale's Early Peach.....	134
Early York (Rivers')	134	Haines' Early Peach	134
Early Rose Peach	134	Herbaceous Perennials	14
Early Savoy Peach.....	134	Hedges	59
Early Alfred Peach	135	Heath Free Peach	136
Early Silver Peach.....	135	Herstine Raspberry	155
Early Joe Apple.....	187	Hickorynut	52
Ensilage	124	Highland Hardy.....	128, 154
Euonymus	27	Hill's Chili Peach	136
European Berberry.....	27	Honeysuckle, The Bush	3
Eumelan Grape.	94	Hoover's Transparent Apple	19
Evergreens	166	Houghton's Gooseberry.....	31
F.		House Plants	69
Faucense	85, 186	Hydrangea paniculata	9, 20
Fall Winesap	187	I.	
Fertilizers, Chickens as.....	29	Insects	43
Fences	33	Irrigation.....	83, 116
Fig Culture.....	182	J.	
Flemish Beauty Pear.....	30, 38	Janesville Grape	21, 29
Flower Seeds.....	61, 96	Japanese Squash.....	68
Flowers.....	190	Jacques' Rareripe Peach	135
Forest Tent Caterpillar	119, 130	Jefferson Grape	17
Foster Peach	135	Jersey Peach	136
Fruits, New	12	Josephine De Malines	58
Fruits, Drying.....	40	Jones' Seedling Peach	136
Fruits at Clinton.....	75	Jonathan Apple	187
Fruit Growing at Templeton	83	K.	
Fruit Canning.....	90	Keeping Grapes	40
Fruit in a Hurry.....	103	L.	
Fruit in Manitoba	109	Lady Washington Apple	19
Fruit Culture in Goderich.....	110	Lady Grape	31
Frost, Action of	86	Lady Palmerston Peach	136
Franconia Raspberry	128	Large Early Mignonne Peach	134
Fuchsias	174		
G.			
Garden Peas.....	44, 55		
Ganargua Raspberry.....	155		
Gen. Todleben Pear	38		

	Page.
Large Early York Peach	134
Late Morris White Peach	136
Leopold I. Peach	135
Lee's Prolific Currant	11, 168
Lord Palmerston Peach	136

M.

Mann Apple	36
Magdala Peach	135
Malta Peach	135
Mammoth Melocoton	136
Maggie Strawberry	154
Mammoth Chester Raspberry	155
Magog Red Streak	188
Midsummer Meeting	143
Miner's Prolific Strawberry	113
Montclair Raspberry	24
Mossing Surface of Pots	4
Morning Glory Peach	135
Morris White "	135
Moore's Early Grape	168
Moonseed	172
McClane's White	136
McIntosh Red Apple	61

N.

Naomi Raspberry	155
New Fruits	12, 146, 176
New Potatoes	31
New Apples	35
New Pears	37
Negley Pears	37
New Dominion Strawberry	113, 154
Nectarine Peach	136
Niagara Raspberry	129
Northern Spy	187
Nut Bearing Trees	49
Nut Planting	60, 100, 107

O.

Oaks	159
Old Mixon Free	136
Ontario Apple	36
Ontario Agricultural Commission,	63
Ornamental Trees	162

P.

Pansy	23, 69
Packing Fruits	38
Pears, Early	7
Peaches, Seedling	14
Pears	44, 55
Peaches	56, 133
Pear Blight	57, 89, 106
Pear Culture	105
Pelargoniums, Perpetual	90
Perry Russet	37
Petite Marguerite	7

Planting Flower Seeds	61
Philadelphia Raspberry	128
Plant Young Trees	190
Plum Carculio	89
Plant Distribution for 1882	167
Poole's Large Yellow Peach	136
Pocklington Grape	175, 180
Pomme Grise Apple	187
Potatoes	47, 55
Potato Beetle	137
President Dronard Pear	38
Princess Louise Apple	74
Prince of Wales Peach	135
Princess of Wales Peach	136
Protecting Grapes	42
Pucelle de Malines Peach	135

Q.

Queen of the Market Raspberry ..	155
----------------------------------	-----

R.

Raspberries	56, 128, 145, 154
Raymacker Peach	136
Red Cheek Melocoton	136
Red Oak	161
Red Astrachan Apple	186
Renewing Strawberry Beds	188
Reports on Plants, etc.,	93, 142, 169
	170, 172, 181
Ribston Pippin Apple	186
Rivers' Early York	134
Rock Chestnut Oak	160
Roses	48
Rose of Sharon	85
Rot in Tomatoes	169, 183

S.

Salem Grape	30
Salway Peach	136
Sample White Peach	136
Saunders' Peach	137
Saxton Stripe Apple	187
Scott's Winter Apple	188
Seedling Peaches	14, 124
Senasqua Grape	12, 21, 94
Sharpless Strawberry	115, 153
Shanghae Peach	135
Sheep in the Orchard	115, 157
Small Fruits	152
Smock Free Peach	136
Snow Apple	85, 186
Snowberry	28
Souvenir Du Congres Pear	19
Soil for Fruit Trees	39
Sorghum	46
Sops of Wine Apple	187
Spindle Tree	27
Spirea prunifolia	167

St. Lawrence Apple	Page. 186
Staff Tree	28
Stump Apple.....	36
Strawberry, History of the	65
Strawberries, 111, 153,	186
Stump-the-World Peach.	136
Sugar, Manufacture of Grape	5
Sugar Making.....	41
Surpasse Melocoton	135
Susquehannah Peach.....	136
Swayzie Pomme Grise	36
Sweet Potato Culture	132
Sweet Chestnut.....	51

T.

Talman Sweet Apple.....	187
Telegraph Grape.....	22
Tetofsky Apple	187
Thwack Raspberry	155
Tomatoes Rotting	169, 183
Transplanting	125, 148
Tree Agents.....	161
Turner Raspberry	129, 154

V.

Van Buren's Golden Dwarf Peach,	136
Van Wyck Sweet Crab.....	46

Vicar of Winkfield.....	Page. 74
Virginia Creeper.....	28

W.

Wallbridge Apple	36
Waterloo Peach	133
Ward's Late Free Peach	136
Walburton Admirable Peach	136
Wealthy Apple, 10, 36,	187
Whitewash	16
Whorled Winterberry	27
White Melocoton Peach	136
Wild Cornel Tree.....	28
White Oak	160
Wild Thorn.....	28
Winter Blooming Window Plants,	8
Wine Making	30, 94, 182
Winter Meeting.....	33
Window Gardening	121
Windsor Chief Strawberry	153
Wilder Peach.....	137
Wistaria	97

Y.

Yellow Transparent Apple	32, 187
Yellows in Peach.....	119
Young Orchards.....	126

The Canadian Horticulturist.

VOL. III.]

JANUARY, 1881.

[No. 1.

HOW OUR NEIGHBORS DISPOSE OF THEIR APPLES.

Having occasion to visit the City of Rochester in the interests of the CANADIAN HORTICULTURIST during the past month, the opportunity was improved by making some inquiry into the disposition of the large crop of apples harvested the past season. There has been an unusually large yield of apples in the vicinity of Rochester, and we expected to hear that a great many bushels had gone to waste because there was no method whereby they could be turned to account. But such was not the case. A good market had been found in the cities for all the really sound first-class fruit at fair prices. Then the evaporators had bought up all of the next grade and prepared them so that they would keep for an indefinite length of time, diminished in bulk and weight so that they can be easily transported. And last of all the Cider Company had bought up all the rest, so that there was not an apple of any quality, good or bad, that had not found a market.

The Reports of the Fruit Growers' Association having very fully described the process of evaporation, and given exhaustive accounts of the products and their use, it was decided to spend the time at command in visiting the works of the Duffy Cider Company. The main building of this manufactory is one hundred and twenty by two hundred feet, in which are the steam engines that supply the power, the mills for grinding the apples, the presses for extracting the juice, and the vats in which the cider is filtered and clarified before being barreled for market. The building in which the apples are received is of two stories, and at present only three hundred feet long, but being extended two hundred feet, so that when completed it will be five hundred feet long. Into the second story the apples are unloaded from the cars, in which they are brought from a distance; and the first story receives the apples brought by the farmers from the adjacent country. The mills, there are two, are capable of grinding

each a thousand bushels per hour, so that with one set of hands they can work up ten thousand bushels per day. The yield is about three gallons and a half to the bushel of apples taking the average of the season. Each press takes one hundred and ten bushels of apples to a cheese, and about forty minutes is consumed in the pressing of each cheese. During the past season they had used up about five hundred thousand bushels of apples, all of which were of no value for any other purpose, not being good enough for the evaporators. The apples had cost them about fifteen cents per bushel, averaging to the grower this year from ten to twelve and a half cents.

This year the farmers got fifteen cents per bushel for apples that were good enough to use in the evaporators, but this was a season of great plenty and prices ruled low. Usually they get for such fruit about twenty-five cents per bushel.

The cider manufactured by this company is mostly clarified by filtering through sand of a peculiar character, which is brought from Massachusetts, and after being prepared for market will keep without change the year round. It is retailed by them at two dollars per barrel of thirty-two gallons, and sold at wholesale at one dollar and twenty-five cents.

After the cider has been pressed out, the pomace is saturated with water and left to ferment, and when this fermentation has reached the proper point it is again pressed, and the product made into vinegar.

To what uses this cider is put after leaving the factory is matter for conjecture. Doubtless much of it is used in the manufacture of wines of various sorts, most prominent among which are the various sparkling wines that are so much sought after in the American market. Some of it is probably distilled and made into beverages of a more potent character.

If these methods of using up inferior apples become general, it would seem that the temptation to barrel apples of poor quality should be much lessened, and we may hope to see only such as are strictly sound and of first quality sent to market in the fresh state. It is trying to the producer to sort his apples with the proper care, when he knows that all that are not marketed in the barrel are of no money value to him; but when he knows that there is a market for every one, even the very poorest, and that unless his barreled fruit is put up with the greatest care it will bring but a poor price, then he will

not be so anxious to get rid of his apples as to spoil the price of his barreled fruit.

Another result from this clean consumption of all the apples will doubtless be a very great reduction of the codlin moth; for every apple being removed from the orchards, and the wormy fruit in particular subjected to these processes of manufacture, the insects will be taken to factories and there so severely handled that most of them will perish. Is there not in this a more sure and universal trapping of the codlin moth than would be effected in a century by the scattered use of bands of paper or cloth or any other of the traps that have been devised for lessening their numbers? Should this result follow, there will soon be an abundance of perfect fruit, free from the excavations of these little pests, to gladden both producer and consumer.

THE BUSH HONEYSUCKLE.

Honeysuckles we generally think of as climbers. Their rich, shining, glossy leaves, and in many cases, sweet scented flowers, are seen clustering above the eaves of every cottage by the wayside. No plant is more generally healthy, and none bears with less injury the rigours of the most trying exposures. *Lonicera* is the botanical term applied to all honeysuckles, but under the term are included forms that are as far removed from a climbing vine as any shrub. These forms of honeysuckles are genuine shrubs, not climbers artificially trained into shrubs after the method often applied to wistarias and trumpet creepers. They have every attribute of a shrub, and some of the best attributes developed in a high degree. These attributes are naturally shared in nearly equal degrees by both climbers and bushes of the genus *lonicera*, and they consist largely in extreme hardiness and vigor or growth. In the roughest, most exposed positions by the seashore, or on bleak hillsides, may be seen in the thriftiest, healthiest condition, honeysuckles of all kinds, and particularly those called fly honeysuckles or bush honeysuckles, *Lonicera* or *Xylosteum*. It is true the habit of the bush honeysuckle is a little coarse, but it is so vigorous, and such a lively green throughout the season until late fall, that one forgives it a little want of fineness of nature.

Their flowers are not specially conspicuous, but always pleasing, ranging in the several species and varieties through many shades of white, yellow, pink and red. There are at least fifty species and varieties known in collections, and among them is considerable variety of color and form, although the general appearance of all bush honeysuckles is much the same. All have good-sized, bright green leaves, quite distinct from those of the climbing honeysuckle, but the general appearance of the leaf and size of the flower is much the same. The different species come from widely diverse

regions of the temperate zone, from both Europe and Asia. One of the very finest, *L. fragrantissima*, with white petalled and yellow stamened flowers, early bloom and vigorous habit, was introduced from Japan a little more than thirty years ago, while *L. alpigena* and *L. corulea* have been mentioned and more or less employed for nearly 400 years. The best known in gardens of the present day are the red and white Tartarian honeysuckles *L. xylostemum* or English fly honeysuckle, *L. ledebouri* and *L. canadensis*. The flowers of the last three are yellow or yellowish brown; and *canadensis*, more inclined to climb than other bush honeysuckles, is specially noteworthy for leaves of a beautiful silvery-grey color.

But honeysuckles have another charm in their fruit or berries, that cannot be praised too much or too often. All through August and September these berries stand in small, thick clusters on the ends of the stiff, upright branches. They are red or orange, and very effective, especially as shrubs with ornamental seed vessels are none too plenty. The positions that bush honeysuckles should occupy on the lawn are within the outskirts of the group, among the more massive and less refined shrubs.

Bush honeysuckles cannot be fairly classed among the most beautiful deciduous shrubs, yet their vigor and general hardiness are so excellent, their flowers in spring, in many species, so sweet, and the foliage of such a bright, attractive green, that no lawn, and scarcely any considerable shrub group, can afford to neglect their charms. After this assertion I need hardly say that bush honeysuckles receive too little employment at present.

—*S. Parsons, Jr., in Country Gentleman.*

MOSSING THE SURFACE OF POTS.

Covering the surface of pots with moss is very beneficial, as well as enhancing to the appearance of the plants. A good many kinds of succulent growing plants during their season of rapid growth require when growing in pots a great quantity of moisture at the roots. This is the case with such kinds as carnations, bouvardias, heliotropes, geraniums and roses, especially if grown in a house heated by artificial means, and a minimum of 50 degrees maintained. A good many failures with roses during winter are caused by not supplying sufficient water to the roots when growing. For years I made this mistake myself, but as we are daily learning the nature and requirements of plants better, I find that too much water cannot be given roses growing in a high temperature, having plenty of healthy foliage, so long as there is sufficient porosity in the soil to prevent saturation. Dryness at the roots is often the cause of mildew on plants, and is also the cause of the plants producing imperfect buds. I have seen a house of roses in strong, succulent, healthy growth, allowed to get dry at the roots (not sufficient to cause the shoots to wilt, but enough to check the rapid circulation of the sap in the shoots,) to be covered with mildew a short time after, and the cause laid to injudicious airing or to extremes of temperature, when insufficient moisture was the real cause. I do not say but that mildew arises often from injudicious airing and firing, but I do assert from observation that it also often arises from injudicious watering.

Now, for the purpose of helping avoid this evil and maintaining a better degree of moisture at the roots, during a period of severe weather when strong fires have to be kept up to maintain the required temperature, it is a good plan to cover the surface of the pots, or if growing in shallow benches, the surface of the bed, with moss, which may either be the green moss found growing on stumps and stones in moist parts of woods, or sphagnum moss found in swamps; this latter is the kind I generally use, but the other is the prettiest for house plants. Peter Henderson recommends mixing bone dust with the moss as a fertilizer to the plants. For plants somewhat exhausted from being a good while in pots, this is very desirable, and for the last year during which I have adopted this plan, I found it very beneficial for recuperating plants which make feeble growths from being long in pots. The moss, from its moistness, brings the roots to the surface, and if food is supplied them, a fresh and vigorous growth is the consequence.

Instead of mixing the bone dust with the moss, I often mix it with a little soil, and sprinkle it on the surface of the pots before putting on the moss. This is the better way with house plants, as it keeps the bone covered, and therefore prevents any disagreeable smell from arising. Fertilizing house plants has generally been a difficult matter with window gardeners, but the above method overcomes most every objection formerly met with, and will be found as beneficial as any method generally recommended.

All my bouvardias, heliotropes, roses, and other plants growing in pots for winter flowering, I had covered shortly after placing them in their winter quarters—the result being more flower, larger trusses and buds, and I think better colored, than when grown without any covering on the surface.

—*M. Milton, in Country Gentleman.*

THE MANUFACTURE AND USES OF GRAPE SUGAR.

We clip the following article from the *Breeder's Live Stock Journal*, and ask, if the manufacture of glucose or grape sugar is so profitable, what is there that prevents its manufacture in Ontario, to the benefit of the producer of the corn and the consumer of the sugar, and the establishment of another home industry. The manufactory that consumes two thousand bushels of corn per day, or about six hundred thousand bushels a year, would help to steady the price of corn. The article is as follows:—

Not long since Mr. John L. Alberger, of Buffalo, N. Y., one of the original inventors of the process of making glucose and grape sugar, brought suit for \$450,000 against the Buffalo Grape Sugar Co. Mr. Horace Williams who, it is claimed, understands the question thoroughly, testifies as follows in that suit:

"The manufacture of grape sugar from corn was commenced originally by Williams and his partner. He invented some of the machinery by which the process was brought to perfection. He obtained patents in order to keep his process a secret. Their firm name was then A. W. Fox & Co. They commenced with two or three hundred bushels a day, and increased this amount gradually to two thousand. This was the amount in 1874. The Buffalo Grape Sugar Company was then organized. There were two hundred shares, of which Fox owned 102; witness owned sixty shares, and the balance was held by William Hamlin. Improvements have since been made in the machinery, by which a better article of sugar is made and with greater facility. They first produced a crude sugar—used in the manufacture of ale and lager beer, principally ale. The sugar was used in the place of malt. At a later date they refined the sugar. Grape sugar was also used in 1874 by tobaccoists. As its quality was improved it was used in other branches of business. A large quantity is now used in making sirups for table use. Witness knew there was very little pure cane syrup sold now. The grape sugar is more wholesome and delicious. Glucose and grape sugar are one and the same thing—glucose being the sugar in liquid form. When it is called grape sugar it is in a solid form. This is being used considerably in New York in mixing sugar, making what is called improved sugar. Witness understood that the Buffalo Grape Sugar Company was interested in this mixing of sugars in New York. At the present time the demand for grape sugar exceeds the supply, and the price of it has increased. In 1864 thirty pounds of sugar were made from one bushel or fifty-six pounds of corn. The price was then from $3\frac{1}{2}$ to 4 and sometimes $4\frac{1}{2}$ cents a pound. The refuse is sold as feed, and the price of it was from 7 to 8 cents a bushel. In mixing sugar the grape sugar is pulverized and about twenty-five per cent. added to cane sugar. It improves the color of the sugar, and enables dealers to sell it for a better price.

During 1874 and 1875 the earnings were about \$15,000 a month, and in 1876 they averaged from \$19,000 to \$20,000. In 1878 the earnings for one month were \$35,000. Witness did not see many statements during 1878. A starch factory was run in connection with the sugar works, about 500 bushels of corn being used each day. Witness did not know about the earnings of the starch factory. He was aware that the business was profitable. He understood all of the process of the establishment and had charge of the manufacturing of the sugar, glucose, etc. He made estimates from time to time of the cost of turning a bushel of corn into sugar, and in doing so took into consideration the outlays, cost of machinery, buildings, etc. He estimated it to be about twenty-five cents per bushel, and the net profit of a bushel of corn at forty five cents a bushel, when turned into sugar, to be seventy cents. A number of small manufactories have sprung up in this country, but there are only four or five of any account. The amount of corn consumed in 1879 was from 4,000 to 6,000 bushels a day. In some respects it costs less per bushel to run a large amount of corn than it would to consume a small quantity. The net profit per bushel from 1874 to 1879 was from 40 to 50 cents."

EARLY GRAPES AND ENEMIES.

"Bees don't cut grapes." Don't they, though? I have known grapes ever since the days when the York Maderia, the Isabella and the Catawba were the only sorts out, and these only very little disseminated, but I have never had them injured, as by bees or wasps, until this season. I first noticed the depredation going on over some fine bunches of Iona which were growing on a frame between Concords. I covered these with paper bags and so secured them; but the bees went on along the frame of Concords and soon there were I and X shaped slits cut on the ripest berries of nearly every bunch, and crowds of bees buzzing and sucking and bearing off the juice. A very few wasps were participating, and in one place some ants, and I was troubled to find who began it, who made the first cut, much as one is over the asseverations of a set of boys who have been conjoints in a piece of mischief. The ants and wasps have been here through all the fifty years of my experience, and never were known to do such things; neither have our common bees. But the bees at work here were the ring streaked with yellow Italians, and although I cannot see well enough to make out how they snip the grape with a cut just like that of a can-opener, I believe they do it. It is somewhat singular that other Concords on a higher frame have not been touched, nor any other sorts near, since we cleared the frame first attacked and used what fruit was left to make syrup and marmalade.

As to *earliest grapes*, the downy stout wood of the Champion makes it seem to be a seedling of the Hartford. Both fruit and bunch are small, and the quality is less than tolerable. But it does not drop as Hartfords are so apt to do. I have a grape called the Paxton, which resembles the Hartford in every particular of vine and fruit, is evidently of the same strain, and would appear identical with it, only that the fruit hangs well, becoming very tender and rich when Concords are entirely ripe and passing their prime. If the Creveling would fertilize so as to have complete bunches, uniformly, it would be the best earliest grape among all here, (Central Pennsylvania.) It also hangs well and attains a very delectable flavor. All things considered, we count the Worden our best earliest.

—W., in *New York Tribune*.

A SPLENDID EARLY PEAR.

Petite Marguerite is one of Mr. Andre Leroy's seedlings, and it was held in such high esteem by that celebrated French pomologist that he named it after the youngest of his grand daughters. In the year 1863 it was first offered in France, and in this country it has been on trial several years, but not until recently have its merits been recognised, and its propagation and dissemination seriously undertaken. This shows how much time is required to determine the value and to raise a stock of new fruit. Mr. Leroy was remarkably fortunate in the production of choice pears, but many of his seedlings, like Eugene Appert, Henri Desportes, Madame B. Desportes, Mad. Andre Leroy, and Maurice Desportes, are

such indifferent growers that nurserymen will not attempt to propagate them, and these sorts must therefore remain comparatively unknown, at least until a higher estimate is placed upon quality, and cultivators are willing to pay an extra price for choice kinds that are difficult to raise in the nursery. These varieties will all have to be double worked, which of course adds to the cost of the tree. *Petite Marguerite*, although a moderate grower, both on pear and quince, is sufficiently vigorous to satisfy nurserymen, and I hope in the near future to see this valuable pear extensively propagated in the nurseries. The list of choice early pears is not so large but a few more good sorts may be added, and I am certain that all lovers of fine fruits will welcome the new comer. There is no doubt that when this pear becomes known, it will be regarded as indispensable.

It is of medium size, just large enough to be acceptable as a desert fruit; skin green, covered with grey and brown dots, and sometimes bronzed on the side exposed to the sun; flesh greenish white, fine, melting, juicy, acidulous, with a pleasant perfume. Ripening, as it does, about ten days before the *Bartlett*, it possesses a particular value as an early pear. As a fruit of the very first quality, it can be highly recommended to connoisseurs for the table, but it is not large and showy enough for market. Mr. Leroy, in his *Dictionnaire de Pomologie*, describes it as the best pear ripening in August. We believe this statement to be as true in America as it is in France.—W. C. BARRY, in *Country Gentleman*.

BLOOMING WINDOW PLANTS FOR WINTER.

One of the most constant winter bloomers is the Chinese primrose. I have had them in bloom from last October and the end is not yet, for some of the precocious things seem to say: "I will not rest, but keep right along in flower." The ones raised from seed every year are, however, the most floriferous, and for that reason I grow them from seed.

The *Bouvardia* is another abundant bloomer. It likes abundant heat, and the leaves must be frequently syringed or they will certainly drop off with rust. *Heliotropes* are good window plants, luxuriating in all the sun they can get, with abundance of water at the roots.

Calla lilies, if potted in September, will commence to bloom about Christmas.

The *Browalia* makes a very pretty pot plant for fall and winter decoration of the parlor, and by planting a few seeds of it together with *mignonne* and *alyssum*, a little nosegay may be gathered late in the fall. For this purpose the seed should be sown at intervals during the summer for succession, and as soon as the plants are large enough, put in small pots and shift to larger ones as the plant grows.

All geraniums are excellent window plants, and some of them are handsome enough in their foliage even if they produce no flowers. The most constant bloomer is *Mater Christine*, but is a single pink, a color I am not personally fond of. *Jean Sisley*, a good scarlet with a large white eye, is a great favorite of mine, and *Fannie*, with her beautifully bronzed

foliage and monstrous truss of salmon colored flowers, is a gem. Geraniums delight in the sunshine, fair dirt and a moderate supply of water. They require to spread themselves to get the best results from them.

Certain varieties of fuchsias are good winter bloomers, and all are excellent window plants. They are voracious feeders, however, and will not thrive upon the same dirt that geraniums will. A liberal quantity of well decayed manure must be given them. They are very fond of copperas, and some people put rusty nails in the earth they are growing in. A correspondent says, having heard of the above, she knew where there was some water standing in an iron kettle which had been in it for months till thoroughly impregnated with the iron. She put a cupful of the liquid to a pail of water and gave her plants a taste of it occasionally. She is so much pleased with the result she advises all her friends to try it.

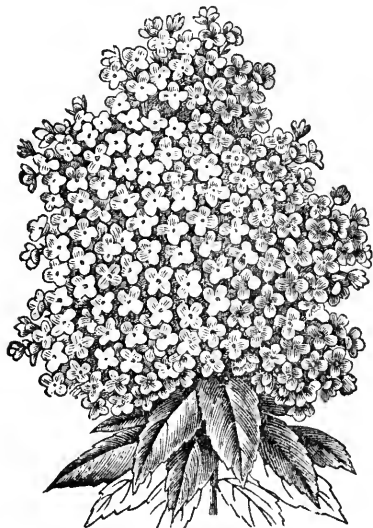
Now I have said considerable about plants which delight in the sunshine, and of course there will be some wanted for the shady places. I have yet to find a better class for the purpose than the Rex Begonias. In a log basket only fourteen inches long, I have two of them, on which the leaves are sixteen inches long, and they get absolutely no further care than abundance of water at the roots, and constant shade. Some people think it hard to grow these plants, but it is an erroneous idea. They increase and multiply very rapidly once one understands how to grow them; and flowering begonias are capital window plants, constant bloomers, easily grown and just the thing for an amateur.

The winter window garden is also much enlivened and perfumed by the hyacinth, lily of the valley and other plants which grow from bulbs, to be planted in the Fall.—MR. RENNIE.

HYDRANGEA PARINCULATA.

This new hardy flowering shrub is offered to those members of the Association who wish to give it a trial, in the expectation from what is now known of it that it will prove to be a very gratifying addition to the number of those shrubs which are in flower in the latter part of the season. We have comparatively few which bloom after mid-summer, and none which retain their flowers for such a length of time. It is said to be as hardy as a lilac, and is esteemed by cultivators as the finest addition to our list of flowering shrubs that has been made within the past twenty years. The flowers are borne in large clusters or panicles on the ends of the branches. Sometimes these panicles are nearly a foot in length and almost as broad. The flowers are white, and remain for several weeks, often changing in the end of the autumn to a pink color.

It is the custom now-a-days for newspapers and horticultural periodicals to make a present to each subscriber of some strawberry or raspberry plant or some flowering plant in order to increase the circulation of the paper. Now every subscriber to the CANADIAN



HORTICULTURIST may have one of these new Hydrangeas who desires it, and we venture to say that no paper in America is offering to its subscribers a more valuable if as valuable an article as is here offered to our subscribers.

Through the politeness of Mr. Jas. Vick, of Rochester, N.Y.,—so distinguished for his zeal in disseminating a taste for beautiful plants and flowers—we are enabled to give our readers an illustration showing the form and appearance of one of the flower panicles, though much reduced in size. From this one can imagine the appear-

ance of a shrub of three or four years growth, bearing from twenty to thirty of these panicles a foot in length.

Besides this, there is offered to every one who will remit to the Editor ten dollars with the names of ten subscribers, new or old, a copy of the HORTICULTURIST for 1881 free, and the choice of any one of the following articles sent post paid to the person making the remittance, and to each of the subscribers whose names are sent. The following is the list of articles, any one of which that the subscriber may designate will be sent: 1, The Senasqua Grape; 2, two pounds of the Dempsey Potato; 3, Hydrangea Panunculata; 4, a one year old tree of the Wealthy Apple.

THE WEALTHY APPLE.

This variety, so valuable for planting in the coldest parts of the country, originated in Minnesota from some seed of crab apples sent to Peter M. Gideon from Bangor, Maine, about the year 1861. Since that time it has been extensively disseminated, and at the meeting of

the State Horticultural Society of Minnesota, held in January, 1879, the only apples recommended for general cultivation in that State are the Duchess of Oldenburg and the Wealthy.

The fruit is of large size, nearly round; color bright red on a yellow ground; flesh white, sometimes stained with red; tender, juicy and melting; season about with the snow apple; quality very good.

The tree is a free grower and very productive. It has been introduced into northern Iowa, where the climate is very trying to apple trees, and is there pronounced to be a perfect iron-clad. Those members of our Association who live in Muskoka, Manitoba and other places where the thermometer sometimes falls to thirty and forty degrees below zero, will do well to avail themselves of the opportunity now afforded them by the Association of giving this variety a trial.

LEE'S PROLIFIC CURRANT.

Some years ago, when this currant was first brought to the attention of fruit growers, the writer imported some plants from England, since which time he has had it in cultivation; and now after fruiting it for a number of years is able to say that it is a very valuable variety, well worthy of attention from those who are in the habit of using black currants.

Representations have been made with regard to it that have not been borne out in the experience of the writer, especially such as make the bunch as long as that of the Red Dutch, and the berries very much larger than any other sort. In these respects it has not seemed to be in any marked degree in advance of the Black Naples, which has stood for some time at the head of our black currants. But as a cropper it has been the most reliable of any, yielding abundantly in all seasons, and when the plants were cultivated and generously fed, produced very large berries.

To the taste of many, the black currants are not desirable as a dessert fruit, but when cooked they are not only very palatable but a most wholesome article of diet. Made into a jelly or jam they are said to be very useful in cases of hoarseness and sore throat. Certainly it is a very agreeable prescription, and one might well be disposed to imagine a hoarseness, if that were necessary to secure an opportunity to enjoy a taste of black currant jam.

SENASQUA GRAPE.

This variety originated at Croton-point, in the State of New York, and is said to have been a seedling of the Concord fertilized with the Black Prince.

Ordinarily the bunches are of medium size, but with care in cultivation they become large to very large. They are usually quite compact, the berries are of medium size, purplish-black, juicy, sweet, and of very good quality. The vine is vigorous and said to be hardy, but how far northward it will be found to do well has not yet been ascertained. It does not ripen any earlier than the Concord, and will therefore probably be found to be too late to be valuable in those parts of the country where the season is not long enough to ripen the Concord perfectly.

The skin of the berries is as thin as that of the Concord, if not thinner, so that it sometimes cracks, which is against it as a market variety. For home use it will be found to be an excellent fruit, very handsome in appearance and of fine flavor. Some of the samples that have appeared at our exhibitions were certainly magnificent.

A WORD ABOUT NEW FRUITS.

BY A. M. SMITH, ST. CATHARINES.

While I do not advocate multiplying new varieties of fruit unless we make some improvement on those we already have, still it is necessary for some one to propagate and test new varieties in order to make any improvement at all; and while the Fruit Growers' Association and a few private individuals have brought into notice some few valuable new fruits, I think there has not been as much done in this direction as might have been. I know of dozens of new fruits that have been examined and reported upon by committees appointed by the Association, some of which I am satisfied are equal if not superior to many older ones now in cultivation, that are still in the background, and wholly unknown to the public. The most of them are in the hands of amateurs, who have hybridized and propagated them, not so much to make money as from a love of science and a desire to improve

what they have already. Among these fruits are some of the seedling grapes of Wm. H. Mills and Wm. Haskins, Hamilton, the strawberries of Chas. Arnold, Paris, the strawberries and grapes of Chas. Biggar, Drummondville, and the grapes, currants, gooseberries, &c., of P. C. Dempsey, Albury, and Wm. Saunders, London.

Last summer I had the pleasure of visiting the grounds of Mr. Saunders while his currants and gooseberries were ripe, and comparing them with some of the leading popular varieties, and I am sure if they do as well in other places as they do there some of them if they become known will take the place of varieties now in cultivation. He had two varieties of black currants growing by the side of Black Naples and Lee's Prolific, which as I saw them I should prefer to those varieties. One was a larger berry and fully as productive, the other equal in size and productiveness and much sweeter and better flavored. I also saw several seedling gooseberries, crosses between the Houghton and English varieties—some of which have been brought to the notice of the Association before—growing and ripening along side of Houghton's Seedling, Downing and others, which in size and productiveness would excel any of the old varieties, and they were apparently as free from mildew; also a very fine red seedling currant.

Now what I want to suggest, is that some means be devised to test the qualities of these fruits and bring them before the public, particularly those whose originators are too much occupied with other things, or are too modest to push them into notice. Could not the Fruit Growers' Association, now that it has experimental grounds at its command, take hold of these and test their merits, and if worthy to be sent out propagate them and allow the originators a royalty on all that were disseminated? It has been said that any man who makes two blades of grass to grow where but one grew before is a public benefactor, and why should not a man who makes two grapes or strawberries or any other kind of fruit grow where only one did before be considered as such and rewarded accordingly? The Association has in years gone by offered money prizes for new fruits which were equal or superior to standard varieties, but I would suggest that in addition to this an honorary medal or testimonial of some kind should be given by the Association to any one who originates a new fruit of superior quality. I throw out these suggestions, hoping the Association or its Directors will take some action on them at their next meeting.

SEEDLING PEACHES.

The past season has been very prolific in seedling peaches. The preceding winter was mild, hence every peach tree that was large enough to bear fruit was loaded to breaking. Samples of new sorts were received by the Editor from almost every part of the Province, many of which were very fine indeed. Some of those which came from Collingwood were of such fine size, and possessed so many points of excellence, that we are led to speak of these seedlings, for the purpose of calling attention to the importance of raising up a race of more hardy and healthy varieties, which, originating in our climate, shall be better adapted for general cultivation in Ontario than those which are now in cultivation. It has been demonstrated that if you can secure seed from a southern tree growing at its northern limit and succeed in raising plants from this seed, the seedlings thus grown will be more hardy than the parent, and better able to resist the severity of the climate. We trust that our fruit growers upon the shores of Lake Huron and of the Georgian Bay will not lose sight of this fact, but will experiment in this direction, particularly in the raising of seedling peach trees from seed ripened there, for we are confident that in a few years they will be able in this way to secure a race of hardy peach trees that will give them a crop of fruit, if not as regularly as they secure a crop of apples, yet much more regularly than they can ever hope to obtain from trees originated in a more southern climate.

AUTUMN PLANTING OF PERENNIALS.

The old fashioned garden, in which Larkspurs and Lychnis bloomed side by side with Pæonies and Prince's feather, while Canterbury Bell and Columbine elbowed each other for precedence, and old fashioned, out-of-date Honesty hung out its silvery seed pouches; and where sweet scented rosemary and bergamot and southernwood were'n't ashamed to flourish rampantly, has given place to the mania for bedding plants and formal arrangements of geraniums and pelargoniums and coleii, and to stately Caladiums and Marantás. But in one of these old gardens in which plants were jumbled together in charming confusion and delightful profusion, every step was a surprise, and a tour of inspection a perfect voyage of discovery, in which were brought to light whole continents of bloom. Here a trailing branch of Honeysuckle, dew laden, swept your face; there a wanton sweet brier clutched you with many thorns. Here is a plant whose presence was

unexpected, its growth being concealed by more aspiring neighbors, still it asserts itself, as modest merit does at times, by hanging out a dainty spray of buds and perfected blossoms; there is a regal blossom that two days ago was a tiny, twisted, convoluted bud, that did not act as if it meant to show itself for a fortnight. I have in mind such a garden now, in which York and Lancaster roses stood side by side as the rival factions never did in old England; where Damask roses sent a shower of perfumed petals over a carpet of "Creeping Charlie" and stone crop; where a purple Morning Glory twisted itself round a convenient Hollyhock and dangled its bells from its very top. It was a garden of delight, of unlimited boquets, of happy luxuriance and never ending variety.

But though not all homes can be beautified with so lovely and luxuriant a garden, there are none which cannot afford a few flowers, and to these the hardy perennials will prove more desirable than an attempt at the bedding out system, in which plants must be judiciously arranged with reference to height and color to be effective. Then, too, bedding plants require an outlay of time, trouble and expense which perennials do not.

There are very few farm houses about which there is not some unsightly view which might be hidden by judicious planting of shrubbery. There are very many ornamental shrubs which may be purchased for the purpose at a nurseryman's if one has means, but our common lilacs and snowballs will answer every purpose. Against these, as a background, may be arranged perennial plants in a manner which will be very effective. Hollyhocks, the double varieties being best, herbaceous Phloxes and the perennial Larkspurs, which often attain a height of four feet, look well against a background of verdure. The old fashioned Tiger Lilies and Crown Imperials also deserve a place. Where more space can be given and some attention paid to their growth, greater things may be attempted.

At this season of the year roots of perennials may be set out with good hope of surviving the winter and making free growth in the spring. One merit, and it is no slight one, of this class of plants consists in the fact that they are always on hand. Once established they go on increasing and growing better every year with no care except to see that weeds do not choke their growth, and to supply them with a little fine manure. Among the most deserving of such flowers we may name, in addition to those already mentioned, Pentstemon, a tall stately plant, whose tubular flowers of scarlet, blue and white grow in panicles; Poppies, whose orange and scarlet blossoms, though not very enduring, are very showy and fine among shrubbery; Peonies, the deep, blood-red variety being especially beautiful against a green background; Columbines, with horns of honey; the Foxglove, with her purple hood; Sweet William, which is now so much improved that it is hardly the same flower, with its splendid trusses of velvety bloom; Pyrethrums, which are as desirable as fine Asters; Sweet Rocket and wall flowers. Then, too, we have Pinks, both Japan and Chinese, which are perfectly hardy and are never done blooming; Pansies and Daisies; all varieties of hardy Lilies and Roses, which make the garden a bower of beauty in June; the Flowering Almond, "April's gift to April's bees;" indeed, the difficulty is not in the variety, but in making a choice

among so many. Among climbers there is the Woodbine, so universally a favorite, the varieties of Honeysuckle, the Trumpet Vine and Climbing Bittersweet, and the Perennial Pea, the

"wanton witch
In so much haste to wed,
She clasps her rings on every hand."

In planting out hardy perennials there should be no definite pattern or plan; everything like formality should be avoided. The beds should be thoroughly prepared at the outset that the roots may remain undisturbed as long as possible and still be able to find plenty of food in the soil. Especially avoid crowding, remembering always that the slips of seedlings which look so small and at such a distance from each other will develop into clumps and masses of most decided proportions. Do not set them in an unvarying straight line if they must grow in a narrow border, but break the regularity and monotony as much as possible. Annuals, and bedding and "carpet" plants may be used to fill up vacant spaces with the best possible result. A single verbenas may flourish and extend itself as only verbenas will between two tall plants, a carpet of stonecrop may spread itself somewhere else in the same way, a fringe of blue Lobelia may creep about the roots of another, and the sun-loving Portulacca may border the walk. A Scarlet Runner Bean may be allowed to climb the stalk of a Sunflower, thus furnishing a combination quite in accordance with the popular idea of harmony of color, while the Cypress Vine may garland the surrounding shrubs with its fine light green foliage.

Seeds of many varieties of annuals are advantageously planted in the autumn, among which are Candytuft, Petunias, Annual Poppies the Rocket and Larkspurs, Clarkia, Snap Dragon, Sweet Alyssum and others.

To the lovers of flowers these autumn days are grand opportunities for preparing for an abundance of blossoms next spring. Very soon, too, tender plants which are to spend the winter under the snow should be provided with a blanket of fallen leaves, coarse litter or straw, which must be held in place by bits of boards to prevent December's gentle zephyrs from scattering it.—*Michigan Farmer*.

WHITE HOUSE WHITEWASH.

Take half a bushel unslacked lime and slack it with boiling water; cover during process to keep in the steam, Strain the liquid through a fine sieve or strainer. Now add a peck of salt previously dissolved in warm water, three pounds of ground rice boiled to a paste, half pound powdered Spanish whiting, and one pound clear glue soaked well and melted. Add five gallons of hot water to this mixture; stir it well, and then let it stand for a few days covered from dust. The mixture to be put on hot.—ALEX. LINDSAY.

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[No. 2.

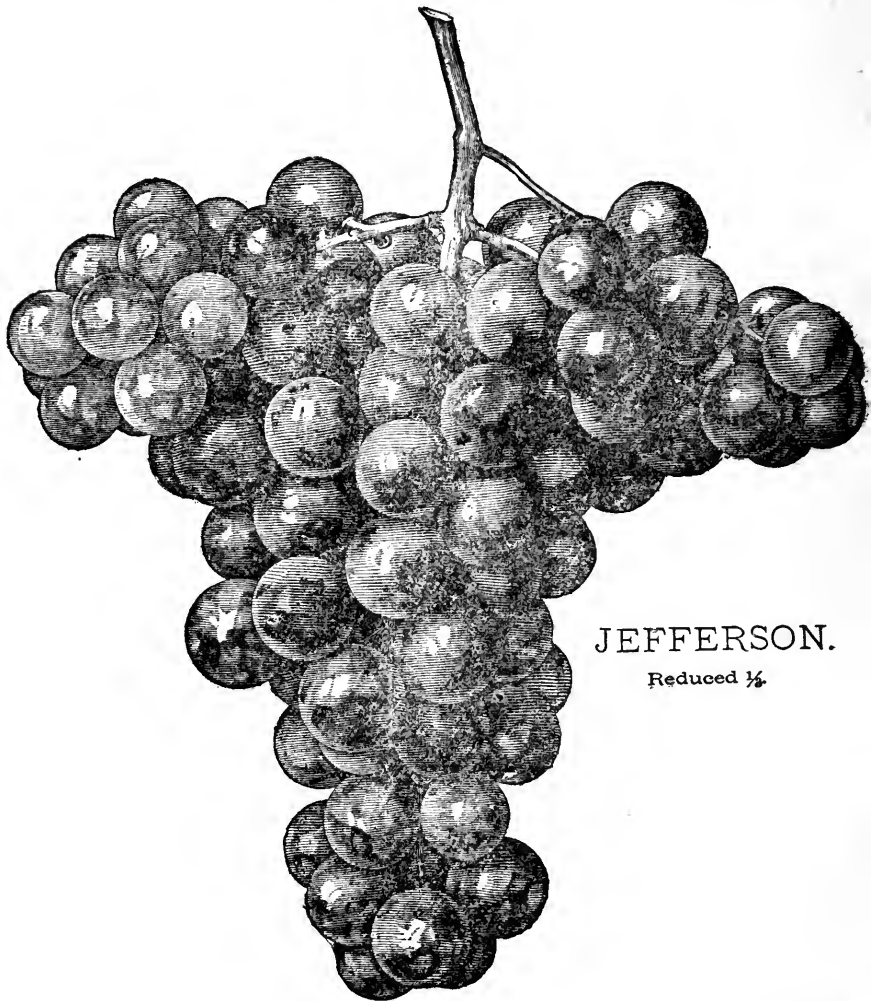
THE JEFFERSON GRAPE.

This is one of the seedling grapes raised by Mr. Ricketts, whose seedlings have become celebrated for their great beauty and excellent flavor. Many of his seedlings have been grown by crossing our native varieties with the European grapes, and while these are in many instances most magnificent in bunch and berry and delicious in quality, there yet remains a doubt whether any of these crosses will prove to be of permanent value in this country, owing to the tendency which exists in all of them to be subject to mildew in a greater or less degree,

But this variety to which we now call the attention of our readers has no intermixture of foreign blood, but is a cross between the Concord and Iona, bearing a strong resemblance in both wood and foliage to the Concord, and seemingly as vigorous and hardy as that variety. The fruit is very like that of the Iona in color and quality, and ripens about with the Concord. We have several times seen this variety on exhibition, and have had opportunities of testing it, and do not hesitate to say that it is to our taste of excellent quality. The Committee appointed to examine the new grapes exhibited at the last meeting of the American Pomological Society, of which Committee our ex-President, Rev. R. Burnet, was a member, reported of the Jefferson Grape, that the berry was "of medium size, deep pink, very vinous; quality BEST."

It is stated of the Jefferson Grape that it has never shown the least sign of rot or mildew, and that it is healthy, hardy and productive, and has stood twelve degrees below zero on the trellis without protection. The fruit is said to keep well, and that the skin is sufficiently tough to enable it to endure transportation without cracking. We notice that Charles Downing, the best American authority in such matters, says of this grape that the bunch is "very large, often double shouldered and very compact; the berries large, roundish oval, light

red, with a thin lilac bloom ; flesh meaty or solid, tender, juicy, sweet, slightly vinous, spicy ; best for market." Last season the Massachusetts Horticultural Society awarded to this grape a *first class certificate of*



JEFFERSON.

Reduced $\frac{1}{4}$.

merit. The Editor of the *Gardener's Monthly*, Thomas Meehan, says of this grape, that it has all the delicious flavor of the Iona. To those who know the flavor of a well ripened Iona this will be quite sufficient praise.

The writer is unable to speak of the growth and hardiness of the vine, or of the time of ripening of the fruit in our climate, not having any of the vines growing in his trial grounds, but from the testimony now presented believes that it is a variety worthy of attention by all lovers of good grapes who find the Concord to ripen its fruit in their locality. We are indebted to Mr. J. G. Burrow, of Fishkill, N.Y., who has taken in hand to cultivate and disseminate the Jefferson, for the cut, showing the form of bunch and berry, which we are now enabled to present to the readers of the CANADIAN HORTICUTURIST.

A FEW HINTS ON SOME OF THE SUBJECTS FOR DISCUSSION AT THE WINTER MEETING.

BY DANIEL B. HOOVER, ALMIRA, ONT.

Question first.—The Lady Washington apple, or Hoover's Favorite, is not generally known to nurserymen, as far as I can understand. It is a hardy, productive and valuable winter apple; size from medium to large. I have another delightful seedling apple; color, shining red on the sunny side; good flavored and tart; keeps till March. These two varieties were presented to the fruit committee of the Fruit Growers' Association at Hamilton last year. In the last Annual Report, page 57, the latter is spoken of thus: "This red apple is akin to the Fameuse, and of almost equal excellence;" but I would call it better, because it neither spots nor turns brown at the core as the Snow apple very often does, and besides keeps much longer than that variety. The tree is old and very hardy, and should be extensively propagated.

Question second.—The Souvenir du Congres pear is a new variety, having been introduced four years, and proves to be a great bearer of large fruit of fair quality, but is not as sweet as was expected when first introduced. It has not been long enough here to be thoroughly tested.

Question fifth.—Clay soil worked fine on top, or cropped with potatoes, with a good coating of barnyard manure, is a good and profitable way to cultivate an apple orchard. Young trees should have a good wash with lye once a year.

Question ninth.—There are two or three kinds of ferns growing in the woods; one variety can be found on low land, the other two on high, sunny soil, generally among hemlocks. They remain green throughout the year, and make very pretty pot plants for the house in winter.

Question thirteen.—Twenty-five miles north of Toronto the black walnut grows luxuriantly. Farmers should plant them in waste nooks on their farms and in fence corners around the orchards. There is an enormous walnut tree on my neighbor's farm, the trunk being about three feet in diameter, from which I am told he gathered fourteen bushels of nuts one year. I know of only about a dozen walnut trees in the entire Township of Markham, and most of them are very old, supposed to have been planted by the first settlers. I know of but one sweet chestnut tree this side of Toronto; it is abortive but hardy; I intend trying the chestnut myself. The bitter hickory is a native here. I would like to try the Sweet Shellbark Hickory. I planted about a hundred walnuts last autumn, and have about as many more yet to plant. Hazelnuts grow well on high land. Butter-nuts grow here.

If people in general knew what the Hydrangea flowering shrub is they would not fail to procure a plant. I have an outdoor Hydrangea Grandiflora shrub, which bore five flower bunches this summer about six inches long and four in diameter; they remained about three months in their beauty. I have a pot Hydrangea, which is the most beautiful flower I have ever seen. It had six flowers which were the size of a man's fist. The color of the flower varies in color from a fine pink to white and pale green. The flowers remained from last August until a few days ago; I thought best to cut them off and give the plant a rest for a few months. The flower on the outdoor Hydrangea came out on the tips of the new wood, about two or three feet high. I cut away all the old wood, leaving only one bud at the bottom for a new sprout to come forth. This is done in the spring of the year.

I would like to know what time and what way is best to prepare nuts for planting? Is it safe to plant them in the fall, or is it best done in the spring?

Will some of our readers who have had experience in the planting of nuts kindly answer Mr. Hoover's questions.—ED.

NOTES ON SENASQUA AND OTHER GRAPES.

BY ALFRED HOSKINS, TORONTO.

I see by the December number that the Association propose to give the members a choice from four articles, and amongst them is the Senasqua grape vine. I saw the fruit at the Toronto exhibition, and although it was fine to look at, I was under the impression it was too late to cultivate here, and I think it unwise to attempt growing a grape which ripens after the Concord. Mr. Geo. E. Campbell, of Delaware, Ohio, in a report to the Michigan Pomological Society in 1877, used the following language about this vine: "To Mr. Underhill we are indebted for the Croton and Senasqua, which have been for some years before the public. The Senasqua is a large black grape, with fine, compact bunches, and a very high, rich and sprightly flavor when well ripened. It is hardier than the Croton, and with much better foliage. With me certainly as early as the Catawba, and I should expect this grape to succeed fully as well as the Catawba in vineyard culture, and to be valuable both as a fine table grape and for wine. It ripens a little later than Concord." In the vicinity of Toronto and east it would be useless to attempt to grow the Catawba.

In Bush and Son & Meisener's illustrated catalogue this language is used: "A hybrid raised by Stephen Underhill from Concord and Black Prince. The vine is vigorous and productive in rich soil, and moderately hardy. The originator does not recommend it as a profitable grape for market purposes, as it is rather late in ripening, (a few days after Concord), but only as a fine and amateur fruit." The fruit is also said to crack.

In the December number I also see that a correspondent writes of the Janesville. I have never seen the fruit, but I think it unwise to advocate the propagation of a vine which produces but poor fruit, and whose only excellence is its earliness. Mr. Campbell in the same report speaks of this vine also. He says, "the Janesville is another early black grape, having the merit of being both very early and very hardy; generally healthy and productive. It is only of medium size, and not better than Hartford in quality. It is however earlier, and does not fall easily from the bunch. For northern locations it would have value as a very early ripening hardy grape, notwithstanding its inferior quality."

T. S. Hubbard thus describes it: "An early hardy grape. In quality, habits and appearance about half between Clinton and Hartford."

What we want is a grape which will ripen from the middle to the end of September, of good quality, at least as good as the Delaware. The aim should be to obtain a good early wine and table grape, and I believe we shall yet become possessed of them.

During the past year I had fruit from the Wilder, Lindley, Agawam, Elvira, Brighton, Burnet, Champion, Telegraph and Delaware. The Champion is mere trash and not worthy of room. Its only merit is its earliness. I found the Telegraph not much better. The centre was very hard, and it was difficult to separate the flesh from the seed. The berries of the Elvira were so close that they cracked and quickly spoiled, and the flavor was not very good. It is a fine vine to cover sheds, &c., as it is very vigorous and the leaves large and healthy. I am not able to give a very favorable report of the Burnet. It mildewed with me, and the leaves have a habit of scalding. The fruit was irregular and rather late in ripening, some of them not ripening at all. Those that did ripen were very fine and delicious, and I am sorry to report so unfavorably of such a promising grape. The Brighton ripened before the Burnet, and is a very fine and showy grape, and I think should be extensively grown. It should be picked as soon as ripe, for I found some which I had allowed to hang to lose their flavor. The Rogers' Hybrids mildewed a little but not much, and all ripened. My soil is light and sandy, facing the south and west.

I wonder the Association have not endeavored to obtain and disseminate Mr. Read's (of Port Dalhousie) white grape. It is early and apparently hardy, and the only fault is that the bunch is small, but it far exceeds many of the favorite grapes now in cultivation. Mr. Read has also, I understand, a very fine seedling gooseberry, which it would be wise for the Association to endeavor to obtain and disseminate.

The raspberry sent last year by the Association has succeeded well with me. It made four strong canes about five feet in length, and I believe will fruit next year. I have several of the new grapes in cultivation, and hope at some future time to be able to give you a report of them.

THE PANSY.

BY MRS. JAS. DAVIDSON, in *Iowa State Horticultural Society's Report*.

The pansy (*Viola tricolor*) was imported from Europe, and originally called heartsease. The French called it pensee, from which comes the name pansy. It seems to be a law in this busy world that nothing desirable is attained without labor. This is especially true of pansy culture; it is equally true that they amply repay our care and attention.

They will grow and bloom when indifferently cared for; but if *fine, large flowers* are desired, certain conditions must be complied with. Several years experience, as an amateur, have taught me, that the plant requires a certain location, treatment and soil to bring it to perfection.

Good plants can be procured from the florist, or grown from seeds. My own method has been, to sow seeds, about the first of April, in a shallow box of fine, mellow soil; sprinkle a little soil on the seeds, barely covering them. Place upon the top a couple of thicknesses of newspaper, the exact size of the box; keep the paper wet till the seeds sprout, then uncover and gradually give sun and air.

It is necessary to have strong, vigorous plants, and much care must be exercised at this period to keep the young plants strong and healthy. Sun and air must be freely given. If kept too damp and warm, they will grow slender and sickly.

As soon as danger from frost is over, remove to the open ground; water freely, and blossoms will soon follow, which will grow larger as the weather grows cooler. Seeds sown in the open ground in June will bloom late in the fall.

In the location and preparation of the soil lies the secret of success in pansy culture.

First, the location should be on the north side of the house; allow no shrub, tree, or other obstacle, to obstruct the sun's rays; the object being to get the full benefit of the morning sun, and at the same time be protected from its mid-day heat.

Secondly, the soil. Mark out the required dimensions of the pansy bed; dig down eighteen inches; remove the dirt and replace it with leaf-mould, sand, and well rotted manure. If leaf mould is unattainable, get as light and porous a soil as possible; the earth immediately under a turf that has been undisturbed for years, is excellent.

The pansy likes plenty of water, but it must not be allowed to stand on the bed. If the soil is light and porous, as it should be, there will be little danger. Liquid manure should be used once a week. The soil can hardly be too rich for pansies.

If flowers are the chief object, do not let the seeds ripen. If, however, you desire to save seeds, select a few plants for that purpose, and keep the pods picked off from the others, the same plants not producing as large flowers, if permitted to ripen seed. After blossoming freely, pinch back, and more buds will soon follow,

The pansy endures over winter, if properly protected. This is done by throwing coarse litter and straw over the plants; care should be taken not to smother the plants, while covering sufficiently to protect them. In the spring, uncover them, and your plants will be green and bright, ready to respond to your care and attention.

They will blossom early, and have a profusion of flowers. New ones should be started by again planting seeds in April. Plants are not satisfactory after the second season; young plants producing the largest and finest flowers.

There is no recreation more invigorating and interesting than flower culture. Three promoters of health: exercise, pure air, and pleasant emotions, are most happily blended. And among the many beautiful flowers that should be cultivated, few will give more pleasure than the lovely, sauey, charming pansy.

NEW RASPBERRIES.

The Chairman of the Committee on new fruits, appointed by the Michigan State Horticultural Society, reports:—

“The Cuthbert Raspberry has for some months past attracted much attention as the coming market red raspberry. Experience with it in our State cannot, of course, have yet been very extensive, but so far it would seem to be favorable. J. D. Baldwin, of Ann Arbor, has doubtless been as thoroughly acquainted with it as any other person, and so far as we have understood, his impressions respecting its desirability are favorable. It seems to quite hardy, of fine size, firm texture and rich color. Queen of the market is considered as identical with it.

MONTCLAIR

is a recent seedling of Mr. E. Williams, of Montclair, New Jersey. We think it is not yet in the market, but plants sent us for trial have now fruited two seasons, and prove to be of fine size, great firmness of texture and excellent quality—qualities essential to a good market berry. It proves abundantly hardy at the lake shore. It purports to be a seedling of the Philadelphia, and, like its supposed parent, produces suckers but sparingly.

GREGG

was heralded with so great a flourish of trumpets that there seemed occasion to fear that it might fail to realize all that we might be led to expect of it. It seems now clear, however, that it is really a step in advance of the old and popular Mammoth Cluster, at least so far as size is concerned, while it is at least its equal in quality and productiveness. It seems pretty sure to become, among black caps, the leading market variety, although we already hear of varieties with the ability to outdo and supersede it.

THE DEMPSEY POTATO.

This new variety was raised by the President of the Fruit Growers' Association of Ontario, P. C. Dempsey, Esq., and through his kindness it is offered to all the subscribers to the HORTICULTURIST who prefer to give it a trial instead of the grape vine, flowering shrub or apple tree. In giving the history of this potato Mr. Dempsey says:—

"About the year 1861 I planted a hill of the Early Rose potato in a patch of Early Goodrich, carefully removing the stamens from all the flowers of the former, and depended upon natural causes to fertilize them. No other variety being near them, there must be a cross or no seed balls would have been produced. The Early Rose is not apt to produce seeds on account of its ripening before the seeds mature. In order to overcome this difficulty I employed water and stimulated it occasionally until the seeds had matured. The seeds were planted the following spring, and each plant grown for a time in a thumb pot, then transferred to the open ground, giving each plant about two by three feet, they were carefully cultivated. The result was that many of the tubers attained full size the first year. I had about two hundred varieties giving more or less promise of excellence. Many of the varieties had very tender foliage, were liable to sun-scald and lose their foliage before the tubers had matured. I commenced rejecting any that did not come up as I thought to the then standard, which included hardness of plant, full medium sized tubers, and to contain very few if any small ones, to cook dry and mealy, not gummy, and to be good in flavor.

"In 1872 I had thinned them down to about one hundred varieties, which I showed that fall in Hamilton. I was nearly two days contending for space to exhibit them, and received very little encouragement for the enterprise. I have continued to reject, until I have but the one variety left.

"The Dempsey is a good strong grower, and seems to do well on every soil, but does best on heavy soils. It is a good cropper, not being excelled by any table variety with me in that respect. The tops stand up well, rendering cultivation easy. It does not readily yield to drouth; maintains its foliage green usually until frost, and usually continues to grow until then. If planted early it does very well as an early potato, but is not the earliest variety."

The writer has had an opportunity of testing this potato both boiled and baked, and has found it to be of excellent quality, mealy and dry. In form it is oblong, usually tapering towards the seed end. The color is a purplish red, sometimes staining the flesh when cooked, and the skin is often quite covered with russet.

AUTUMN BERRIES.

We take great pleasure in calling the attention of the readers of the CANADIAN HORTICULTURIST to the colored plate which adorns this number of our monthly. It is a beautiful representation of some of the autumn berries which are to be found on several of our native or cultivated shrubs, and we trust that it will serve to awaken the attention of those who are planting ornamental shrubs about their dwellings, to the beauty of some of these when laden with their variously colored fruits. We plant so as to have as far as possible a succession of flowers, and prize as especially valuable any which flower late, so as to extend our season of bloom as far into the autumn as we can. But there comes a time in our Canadian climate when the flowers cease and the leaves fall, and the snow covers the ground with its mantle of white. What can we do to give beauty to our lawns, and relieve the dull monotony of leafless twigs in the chilly autumn days, and when the wintry winds are driving the snow before them in circling eddys?

Dame nature, ever bounteous and mindful of that which shall give beauty and variety to her works, has given into our hand many a tree and shrub that we can plant, if we would only use a little forethought, so that our lawns shall be by no means devoid of beauty, nay, rather shall possess a charm in these bleak days when the flowers of summer are gone, that can only be brought out in its fulness at such a season.

In the leafy month of June we pass by the evergreens without thought perhaps, but when the boughs are bare with what pleasure does the eye rest upon the evergreen trees, noticing variety of shape and foliage, now admiring the sturdy form and sombre hue of the Austrian pine, or the towering spire of the Norway spruce, or the graceful outlines of our Canadian hemlock. It is then that we fully appreciate the value of the evergreen trees, as they stand out in the fulness of their beauty in the winter landscape. So, too, we now notice the beautiful effect of those trees having colored bark, and pause to admire the group of white bark birches intermingled with the golden bark willow, the red bark dogwood and the striped bark maple.

But it is to the effect which may be produced by planting those trees and shrubs which in autumn and through a large part of the winter are ornamented with beautifully colored berries, that we wish

particularly to call attention. In our plate, for which we are indebted to the politeness of Mr. Jas. Vick, the enterprising publisher of *Vick's Monthly*, will be found excellent representations of several berry-bearing shrubs which can be planted in our climate, by means of which a very pleasing appearance can be given to our grounds during the autumn and winter months. The berries at figure 6 represent those of the *Euonymus* or Spindle tree. There are several varieties of Spindle trees, the particular one at number six in our plate is the European, having orange-scarlet berries, which appear as the capsules burst, and when the shrub is covered with these it is a very beautiful and showy object. It is a native of Europe, and is found abundantly in Great Britain. When growing wild in hedge-rows and thickets it does not attain to any great size, but when planted singly in a favorable spot it will grow to the height of twenty or thirty feet. The most handsome species is found in the south of Europe, and is known as *Euonymus latifolius*, or broad-leaved *Euonymus*. It has broad, shining leaves, and large red pendulous fruits with orange-colored seeds, which are suspended in the air when the capsules open, thus giving to the tree a very attractive appearance. Whether it will endure our climate is very doubtful; we are not aware that the experiment has ever been tried. We have a native variety which is very pretty, and of course perfectly hardy. It prefers moist soils, and is found from Canada to Florida; it is known as the American *Euonymus*. The capsules are of a deep crimson; the seeds are white, and nearly covered with a scarlet integument. They are very showy when laden with their fruits, and are often called the Burning Bush on account of their ruddy appearance.

At the top of our plate, and designated by the figure 2, is the Whorled Winterberry, (*Prinos verticillatus*), or, as it is called in some places, the Black Alder. The flowers of this species are white, and the berries of a bright crimson red. It is found growing from Canada to Virginia, in damp sandy soils or on the borders of swamps. There is another variety, the *Prinos glaber*, which has black fruit, and hence is called Ink-berry. These berries remain all winter.

At the right hand corner, and designated by the figure 4, are the scarlet berries of the Berberry, which also continue to hang all winter. This shrub is too well known to need any particular description. The variety here represented is the European Berberry, (*B. vulgaris*); which

fruits more profusely than our native, *B. Canadensis*. The writer was struck with the beauty of one of these shrubs laden with scarlet berries shining through their partial covering of newly fallen snow, when passing a neighbor's grounds this morning.

The cluster of small white berries to the left of the Berberries is the fruit of a native Dogwood or Wild Cornel Tree, *Cornus Stolonifera*. The bark of this species is red, like that of *C. Sanguinea*, and contrasts beautifully with surrounding objects, particularly towards the end of winter, when the bark seems to assume a brighter hue.

At the bottom of the plate, figure 5, is seen the fruit of one of our Thorns, the *Crataegus lucida odorata*, whose leaves are bright and shining, hence the specific name *lucida*, and whose flowers are fragrant, hence the further specific name of *odorata*. The fruit is a deep dark red, shaded with black.

The berries designated by the figure 7, on the left hand side of the plate, are those of the American Holly, (*Ilex opaca*). This species has not been found in Canada to the writer's knowledge, nor indeed north of the State of New Jersey. It abounds on the eastern shore of Maryland, and near Richmond in Virginia. It bears a striking resemblance to the European Holly in its shining evergreen leaves and numerous red berries.

The large white berries just above the centre are those of the Snowberry, (*Symphoricarpos racemosus*). This is a very hardy native shrub, found in Ontario and on the north-west coast at Nootka Sound. Its large white berries form a very pleasing contrast when interspersed with the red fruits of the Berberry and Scarlet Winter-berry.

The two remaining fruits are those of climbing shrubs. Those at figure 1 are the berries of the Staff Tree or Climbing Bitter-sweet, (*Celastrus scandens*). This is a native twining shrub, found growing in many parts of Ontario. When the orange-colored capsules open at the approach of winter, the scarlet seeds are disclosed, giving to the plant a very attractive appearance. The berries continue to hang for a long time after the leaves are fallen.

The dark purplish berries at figure 3 are those of the Virginia Creeper, often known by the name of American Ivy, (*Ampelopsis quinquefolia*). The leaves of this climber change in autumn to crimson and scarlet and purplish red, and for a short time it is gay indeed with its gorgeous crimson leaves and purple berries on scarlet fruit-stalks.

MORE ABOUT THE JANESVILLE GRAPE.

COMMUNICATED.

I see that your attention has been called to the Janesville Grape by Mr. Farncombe, and that you wish to hear the experience of others: I agree with your Newcastle correspondent in many points, but if he cannot ripen them before September he had better leave for some more favorable clime. I had them ripe here (Brampton) this season 20th August, which is no uncommon thing. I don't consider them superior or even equal in quality to the Concord; about equal to the Beaconsfield or Champion. But then it is the earliest grape I am acquainted with; (the Burnet has not fruited with me yet,) and is perfectly hardy; it is said to stand forty degrees of cold without injury. I think it is the most profitable grape we have, considering its hardiness, early maturity; and it being a free grower and good bearer. It comes on before the market is glutted, and consequently brings a good price—much better than finer varieties ripening later in the season.

CHICKENS AS FERTILIZERS.

In the last agricultural report for this State, says the *New England Farmer*, we have the testimony of Mr. Kinney, of Worcester, that from seventy-five hens he made in one year \$250 worth of American guano. His main object in keeping hens was for the purpose of dressing his land. Formerly he bought many cords of manure to dress two acres of land. He now cultivates eleven acres without buying a cent's worth of manure. He keeps his hens confined the year round; he is very careful to give them clean, wholesome food, and to keep their house clean and sweet. The floor is covered with three or four inches of gravel, and the droppings carefully and frequently removed, and kept dry. At the end of the year he had one hundred and fifty bushels of droppings, making about one ton in weight, which he pulverized and mixed with three and one-half tons of poor loam and a little plaster of Paris. He then had four and one-half tons of guano, which he testifies is better than any imported article he has tried. He sows it on the ground, uses it in a solid or liquid form; in the hill, and everywhere it is a success. The experience of Mr. Kinney is certainly worthy of thought. If the excrements of birds on the coast of Africa and South America are of sufficient value to import to this country, we cannot see why we may not use with profit the droppings of fowls raised in our own land.

Hens properly fed and cared for will return one hundred per cent. profit above their cost of keeping in eggs alone, and when we add their meat producing power, and lastly their fertilizing capacity, who will say that they are not profitable to keep?—*Florida Dispatch*.

RESULTS OF EXPERIMENTS.

BY A. MILNE, LANGFORD.

I received two trees of the Ontario Apple last spring in good order, which I planted directly on their arrival, and they took kindly to the soil and treatment, and are now looking healthy and thrifty. The Saunders Raspberry was likewise received in good order, and promises prosperity in its new location. The Arnold Hybrid I turned over the fence as being an incumbrance to the ground. The Salem Grape gave about a peck of grapes last year, and the past season set abundance of fruit, which dropped off as the season advanced until there was none left to ripen; still I shall give it another chance, and if it fails the coming season it will be cast out. The Flemish Beauty pear has never fruited yet, although I have two fine trees grafted from it, one of which gave me a bushel and a half fine pears—luscious fruit. I had almost forgotten to say that the Burnet Grape has not yet fruited with me, but is in a healthy condition, and promises to fruit next year.

INQUIRIES ABOUT WINE MAKING, — GOOSEBERRIES, &c.

BY JOHN KNOWLSON, LINDSAY.

If any of the members of the Association have knowledge or experience in wine making from the Brant Grape, I should be glad to hear the result through the medium of your valuable periodical, and I should also feel obliged for information from any of the readers of your journal who may have experimented in making wine from the mixed juices of different varieties of grapes, and if so the varieties so mixed that have proved satisfactory. And, Mr. Secretary, I would beg to suggest that a subject of this nature might be included amongst others for discussion at some of the society's meetings, if not considered out of place for horticulturists to examine questions relating to the manufacture of wine.

I planted in the spring of 1879 about an acre of grape vines with sixty varieties, intending to plant more when these have been fairly tested. I hope to be enabled to report on at least half the number of these varieties next autumn.

Nearly all the trees that I have got through the first three or four years distribution of the Association failed—apples, pears, grape vines,

plums, &c. My Glass' Seedling Plum is still progressing, but very slowly, and I have one branch of the MacLaughlin living, which bore this year for the first time, and from which I gathered forty-four very fine specimens, and from which I shall be able to get a few good scions for grafting next spring. Gooseberries, viz, Houghton's, Smith's, and Downing's Seedlings, have succeeded admirably with me, but I found the last named most profitable. The raspberry which I got from the Association last spring made a growth of about fifteen inches. I may add that I have been very successful in growing the Lima Bean, which I prize for its nutritious qualities as well as for its agreeable flavor.

THE LADY GRAPE.

This white grape does not seem to ripen at Whitby. Mr. J. K. Gordon of that place, writing to the *Fruit Recorder*, says:—

"It is white, of poor quality, without a redeeming feature. It is late in ripening, later than Concord or Delaware, in fact my Isabella ripened this year as soon as it. So sour and acid that the children wont eat it; and such a wretchedly poor grower as to be quite unworthy of cultivation. I have grown it now for the last four summers, on as fine, rich clay loam as is to be found in Ontario, and though to all appearance in the best of health, and having borne about six or eight bunches last year, and this year, the vine is not over three feet high, and I see no prospect of growing any larger, while the Brighton, the Champion and Worden, which I got from you at the same time, are growing alongside very luxuriantly, and have given me very great satisfaction. I will give this worthless Lady another year of grace, and unless it does better with me than heretofore I shall root it up and fill the place with a better variety. Friends who have received the Lady have had similar experience of it.

NEW VARIETIES OF POTATOES.

We notice in an American exchange that an advertiser offers for sale no less than five hundred new varieties of potatoes, being the collection which won the grand prize medal and diploma at the Centennial Exhibition, held at Philadelphia, each of which, he claims, has its own peculiar merits. He offers sample tubers of the five hundred varieties, correctly named and labeled, for one hundred dollars. He also offers packages of fertilized potato seed, all ready for the experimenter to plant. Apparently he is determined that we shall have as great a variety in the "Murphy" line as in the apple or anything else.—E. J. LEAVENWORTH.

SOME OF OUR AMERICAN EVERGREENS.

Robert Douglas, of Wakegan, Illinois, has raised more and a greater variety of Evergreens than any other man in America, hence his opinion of the merits of a variety, from his long experience in growing these trees, is entitled to great weight. He says:—

“We find that our red and white pines compare very favorable with the Scotch and Austrain pines of Europe. Our white spruce is as beautiful and hardy as the Norway spruce, but we need all these kinds for variety. Our balsam fir will not compare favorably with the European silver fir, or the silver firs of the Pacific slope, but we have the *Abies sub-alpina* of Wyoming, and its variety *Falax*, and the concolor of Colorado, the former of the habit of *Abies Sibirica*, and the latter of the habit of the California silver firs. We have the *Abies Douglasii*, of Colorado, more hardy, and even more beautiful than our hemlock. Among spruces we have the Colorado *Menzies*, and *Engelmanni*, and all these with the exception of concolor which have been tested thoroughly in the northwest, will compare in beauty with any of the foreign kinds, and in hardiness with any of our native kinds.

YELLOW TRANSPARENT APPLE.

This variety was imported from St. Petersburg, 1870, by the Department of Agriculture. It has been fruited at a number of points east and west, and we have every reason to believe it will prove a valuable acquisition as a very early variety, of good quality, for either eating or cooking. Doctor Hoskins, of Newport, Vermont, makes the following report:

It is an extremely early bearer, giving fruit the third year from grafting on a seedling root, and is now bearing its third crop, consisting of over one bushel. The tree notwithstanding its productiveness, is a free grower, being now some eight feet high. It is also an erect grower, and bears its fruit on short spurs close to the main branches, so that it can carry a heavy crop when the tree is small without breaking down. Though so full of fruit that there seem to be more apples than leaves, yet the branches are not bent down at all.

In size the Yellow Transparent is full medium, round ovate in form, straw yellow in color, with an extremely melting juicy flesh of delicate sub-acid, but not very high flavor. It is fair, uniform in size and its chief merit, in our eyes, aside from its perfect hardiness and early and abundant bearing, is that it is the earliest dessert apple we know. It begins to come into eating by the first of August, and the bulk of the crop is just now (August 10) ripening up. It will not keep long, soon becoming mealy and cracking open at full maturity. But for a home apple, or to sell direct to consumers in a near market, it cannot be surpassed; and its waxen beauty and fairness, together with its acceptable flavor, will make it a favorite wherever grown. It is about two weeks earlier than Tetofsky, and if it had been introduced first we doubt if the latter would ever have been heard of.

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[No. 3.

OUR WINTER MEETING.

The winter meeting of the Fruit Growers' Association was held in the City Hall, Hamilton, commencing on Tuesday, January 19th, 1881, at ten o'clock a.m.

President Dempsey occupied the chair, and after the reading of the minutes by the Secretary, called for reports from the various committees.

P. E. Bucke, chairman of committee, submitted the following

REPORT ON FENCES:

Your committee on fences having examined into the subject, have the honor to report:—

1st.—That the existing laws regarding fences are unjust to land owner and occupier, because if he has no need for a fence around his farm, society should not compel him to build one.

2nd.—That if a farmer chooses to soil his cattle he should not be required to expend on fences a tax estimated at two dollars per acre per annum to keep his neighbors' or highway cattle out of his property.

3rd.—That no law should compel a land occupier to make a road or division fence to protect himself from the public at large; that the public are just as much interested in the welfare of the state as are the individuals of the public. These last, therefore, should be protected by a public law compelling individuals to inclose their stock.

4th.—That although the public have a right to travel on the roads they have no right to use said roads for a cattle run or pasture ground.

5th.—That every farmer or property owner, either by paying taxes for road construction or repairs, or by the performance of statute labor, has a certain vested right in the roads surrounding his lands, and in

newly settled townships, or townships being less than half cleared, a majority of owners should say whether the public roads may be used for any other purpose than the legitimate travel or driving of stock when required along them.

6th.—That during winter these roads are fenced in such a way that they harbor snow drifts, thus blocking to a considerable extent the travel along them.

7th.—That the maintenance of fences is an excessive burden on the farmer, now that timber is becoming scarce and dear, and it behooves the Legislature to make such provision by law as will assist in doing away with such an oppressive expense.

8th.—That in the early settlement of this country, when cultivated lands were scarce and there were no pasture lands for cattle, it was in the interest of individuals to fence in their crops and allow the cattle to run at large. Now the case is different. The principal part of the country is cultivated, and the pasture and waste places are in the minority; these, therefore, may be fenced, and not the larger tracts of farm lands.

9th.—That the owners of stock are the individuals who reap the benefits of such, and that, therefore, non-stockowners should not be put to the expense of fences in order that stockowners may make a profit out of their cattle.

10th.—Therefore your committee, taking into consideration the above facts, respectfully suggest that in counties where a majority of the acreage of the soil is arable land, all cattle, horses, pigs, sheep and geese be prevented by legislative enactment from running at large. That owners of all kinds of stock should be compelled to keep them inclosed, or pay all damages that may accrue from their depredations. That it may be the duty of any one finding cattle straying along the roads, streets, or any unfenced lot, not accompanied by a suitable attendant, to drive the same to pound. That for every head of cattle so impounded, the individual who owns such stock shall pay to the pound-keeper over and above all other fees or charges, the sum of 50c. per head to be paid to the individual who puts them in pound. That all damages to trees—whether set on the land of the owner or along the roadside fronting his land—done by animals, be assessed at the full value, having in consideration the age of the said trees and the number of years planted; that such damage be paid by owner of said

stock to the owners of said trees. That suitable attendants be employed when cattle are being driven to market, or from one part of the county to the other, so as to keep them from straying off the road. That any one turning off the road into a neighboring field, either on foot, in a vehicle or on horseback, shall be liable to be apprehended as a common trespasser, and as such be amenable to the law in such cases made and provided.

P. E. BUCKE, Chairman.

THOS. BEALL.

Mr. Beadle said he thought the report was correct, but thought that it was deficient in that it failed to give any argument or statistics to back up the statements made. He would like to see some estimates put in the report, so that when it went out to the public the farmers would see the reasons why these things are so. He would like to have the report referred back to the committee, so that some figures demonstrating the facts stated—which he did not deny—could be incorporated therein. The farms were too much occupied by cross fences, and he did not believe the farmers knew what a large tax they were paying for first cost and maintenance of fence, to say nothing of land taken up. In some counties of New York State the people have taken away nearly all the fences, and the roads are lined with shade trees, and the whole country has the appearance of a garden, and it would be a good thing if such a system could be introduced here.

Mr. Beadle then moved, seconded by A. M. Smith, St. Catharines, that the committee be requested to supplement their valuable report with some arguments and facts going to show why they have come to these conclusions.

NEW VARIETIES OF APPLES.

Mr. Beall, of Lindsay, read a valuable paper entitled "By what standard shall we test new varieties?" which was received with thanks, and ordered to be printed in the Annual Report.

The meeting proceeded to the discussion of the following question:

1.—What new or little known varieties of apples have been introduced, and which of them promise to be of value?

Mr. Beadle said Grimes' Golden Pippin; a new variety, the introduction of which had been helped by this society, was successfully grown in Lindsay, and thought in size and flavor in was superior to the Newtown Pippin for the English market.

Mr. Bucke said he had got Grimes' Golden Pippin from the Association some years since, and it had grown well but had never borne a crop. A graft, however, had borne well.

Mr. Beadle remarked that Mr. Cochrane, of Liverpool, England, had sent him a communication stating that English buyers preferred a small, showy apple to larger fruit.

Mr. Holton referred to the Haas apple, one of high color, handsome, and a hardy grower; more especially fitted for growth in the north.

Mr. Beadle thought the Haas was a rich, good apple; as raised on a clayey loam they were rich flavored and fairly juicy, and would keep well.

Mr. Arnold, of Paris, said that among the new and promising varieties of apples he would place Cox's Orange Pippin first; tree hardy, moderate grower, good bearer, and finest flavored of all desert apples. Second, the Swazie Pomme Grise, tree hardy, fruit good size, crisp, excellent flavor; almost equal to Cox's Pippin. Third, Arnold's Beauty, a first-class grower, superior in appearance to the before mentioned, and a constant heavy bearer. Fourth, the Ontario, a superior apple for general cultivation, large in size, a favorite in the kitchen and orchard, and an annual bearer. The following varieties are superior to the Baldwin, though not equal to the above: Grimes' Golden, Dora, Benoni, Ella, Pomme Royal, Moyle, and Centennial Russet.

Mr. Bucke said the Cox's Orange Pippin was the most liked in England.

The President said it was the best apple he ever tasted.

Mr. Morris, of Fonthill, said, for Canada the Wealthy apple was entitled to the first rank among the new varieties. Another good apple for all sections was the Wallbridge, a fine large red early winter apple. Another good apple was the Stump, similar to and better than the Sherwood's Favorite. He could indorse what had been said about the Haas and other apples.

A. M. Smith said a good variety was the Mann apple, which was a good keeper and bearer, and was well adapted to sections where the Baldwin could not be grown.

Mr. Woodward, of Lockport, New York, spoke strongly in favor of the Mann apple, which was grown extensively in New York State. It was a profitable apple to raise in this section.

Mr. Beadle said there was no beauty in the apple, and it was neither a tart or sweet fruit, but it was a good keeper.

Mr. Woodward replied that he found it tart, and a good cooking apple. It was valuable as a late keeper.

Mr. Holton, of Hamilton, mentioned the Perry Russet, a western fruit, which was a spiey, nice flavored apple, and about the same size as a Greening, although he had found it a shy bearer.

The President said that in 1872 he had procured Russian, German, French and English Apples, and found none to equal a Russian fruit called the Grand Sultan, which matures with our Early Harvest, and produces two bushels to one of that variety. It is as good as the Astrachan, conic in form, medium size; whitish yellow splashed with red, making it very pretty, looking like wax. It produces an over-crop every year. Grand Duke Constantine is a very pretty fruit, but very difficult to grow here. The English apple Cellini is pretty, conic in form; an October fruit; one of the best of kitchen apples, and very prolific. Cox's Orange Pippin was with him an alternate and very even bearer. A good variety was the English Pippin, which it was said would keep two years.

Mr. Morris, Fonthill, said the American Pippin, or two year apple, was an apple which had first been grown in his section. It was a good bearer, brought a high price in the market, and was a good shipper.

NEW VARIETIES OF PEARS.

What new or little known varieties of pears have been introduced, and do any give promise of being valuable in our Province?

Mr. Arnold, of Paris, said that in his opinion the Goodale was one of the best, being very hardy, producing an excellent crop, besides being a better fruit than the Bartlett. The next variety was the Negley, a beautiful pear, and in his opinion the best grown. It was new, and little known; had not been shown in Canada over two years.

A. M. Smith, St. Catharines, had grown and fruited the Goodale this year and it was an excellent variety.

Mr. Biggar had been greatly disappointed in the size of the Brockworth Park variety, though it was very sweet, juicy and nice.

Mr. Bucke, of Ottawa, said that he believed it to be a good pear, but his tree had never borne, and owing to the severity of the climate at Ottawa he thought never would.

Mr. Morris, Fonthill, particularly recommended the President Drouard on account of its freedom from blight. It was less subject to this than any other variety he had grown.

Mr. Beall had tried several new varieties, but all had failed except the Flemish Beauty, which had proved successful.

Mr. Gilchrist did not know much about new varieties. He had grown twenty-two different kinds of the old sort. He gave the preference to the Flemish Beauty, as it was free from blight.

The President had attempted to fruit more than he had ever succeeded in doing. He had imported two hundred different sorts, but had only met with success with about ten of the French varieties. Some Belgian pears were very good, more especially the General Todleben. It was a fine fruit with an enormous stem, with a suture like stone fruit, and was as highly flavored as the Josephine de Malines. He could hardly recommend any of the new varieties. For marketing purposes he placed Clapp's Favorite, Josephine de Malines and the Bartlett at the head of the list.

The Secretary had fruited the Brockworth pear, but thought it was only an old variety with a new name. The Souvenir du Congress was a large, handsome pear, not unlike the Bartlett in appearance, ripening about the same time. He did not think much of its quality; it was not as good as the Bartlett. The Goodale, though an old variety in the States, was not much known in Canada. It was a juicy, sprightly fruit, ripening in October, not particularly attractive in appearance, but of excellent flavor. The Josephine de Malines was a good winter pear, but he considered most winter pears as little better than turnips. The Josephine de Malines, however, could not be classed among these.

The President hoped that the remarks made would not discourage anyone from attempting the growing of winter fruit. He knew it could be done, and he wished to see it tried. He stated that the lowest figure he had been offered for the Josephine was \$6 per bushel, and he could grow them as easily as any other variety.

PACKING FRUIT.

3—The best methods of putting up the different fruits for market.

Mr. A. M. Smith read the following paper on this subject:

One would be inclined to think that the Association had already discussed this subject till it was exhausted when we remember the

number of times it has been before us. But should we visit most any of our markets in fruit time and see the way fruits are brought in; strawberries and other small fruits, for instance, in pails and pans (ready for jam, with the extraction of a little dirt and the addition of a little sugar), peaches and plums in boxes and barrels, apples and pears in meal bags—not particularly well shaken (the bags I mean, no such imputation would apply to the fruit, as the numerous bruises would testify), we should come to the conclusion that there was a necessity for a little more discussion or missionary work, or something of the kind, in this direction. If men are so blind that they can't see the difference between getting forty cents a bag for their apples, shook from the trees and carried to market in bags, and fifty to seventy-five cents per half bushel for good hand picked fruit, in good, clean baskets, or \$2 to \$3 per barrel, I think it the duty of the society to send out a missionary to enlighten them. But, to come to the question, the best way of putting up fruits for the market. This depends upon the object you have in view, whether it is to make the most you can out of your present crop, without regard to satisfaction to your customers or your reputation for the future, or to give satisfaction to your customers and your own conscience, and establish a reputation that will be of use to you hereafter. If the former object is your aim, in the first place get the cheapest packages you can, as near like ordinary ones as you can, and have them hold as much less as possible and look like them. This you can do by giving special orders to the manufacturers. Then put in all your fruit, good, bad and indifferent—don't lose any of it—but be sure you get the good fruit on top of the packages, put the best side up and make it look beautiful—buyers will think it alike all the way through, especially if they have been dealing with honest men. In putting into barrels have good fruit in both ends, as some folks look at both ends when buying—you can put all the poor stuff in the middle of the barrel. If you are not likely to have fruit enough, put in a pumpkin or two or a few turnips to fill up, they will be useful to the buyer, and he will never know who did it, and it will be likely to go to the old country. Don't put your name on and you are safe. This course carefully pursued may insure you the most money for your first crop, providing you don't happen to sell to the same party twice. In that case you could go to some other market where you were not known. But if your object is to satisfy

your customers by giving them a good article, and establish a reputation for fair dealing and good fruit; I would recommend the following course: Get the very best packages of the different kinds wanted, and if you get quart baskets for berries and small fruits have them hold as near two pints as possible. If you get an order for half a bushel of plums or peaches don't try to put them up in a twelve quart basket; if you are ordering barrels to be made for apples don't tell the cooper to cut the staves a little shorter than for flour barrels, or to draw in the bilge a little. When you put in your fruit don't put it in unsorted, just as it comes from the tree; some of the gnarled and wormy specimens won't hurt the pigs, and if you make two classes after you pick them out they will sell for more than enough more to pay for the trouble of sorting. When you put them in your packages don't put all the best on top, but have it uniform throughout, and then you need not be afraid to put your name on it, or offer it to a man the second time. Pursue this course from year to year, and you will never fail to find customers for your fruit at a fair price.

Mr. Woodward, of Lockport, N.Y., thought the best way of packing apples was to lay them stem downward, three deep, and then fill up gradually, and shake them down as they were put in. The trouble with people was that they were not too honest. They endeavored to cram too much into the barrels, and just cheated the hogs.

Mr. Beadle wished to know if it was advantageous to wrap each apple separately in paper. He thought it was, as it evinced care on the part of the shipper, and buyers would place confidence in fruit thus packed.

Mr. Pettit thought apples were overpressed in barrels, and thought that something might be gained by shaking them down after each basketful was put into the barrel without pressing.

FRUIT DRYING.

The best method of preserving fruit and vegetables by drying?

Mr. Beadle opened the subject, and spoke of the old fashion of drying apples on strings, and said the market quotations showed a difference of 100 per cent. in favor of the evaporated apple of the factory. There were several patent dryers which gave good satisfaction in preparing apples for the market. This evaporating process opens up a way of disposing of fruit which could not be marketed in barrels.

Mr. Morris, of Fonthill, said that Williams' dryer gave good satisfaction. He thought the use of these dryers should be encouraged all over the country.

Mr. Woodward, of Lockport, said the apple-drying business was a profitable one, and growers would do well not to work in apples which are only fit for hogs. Again, they put unripe apples in the market. This was a bad policy, and they would lose money by it in the end. The Russets gave the largest product of dried apples. Again, dryers were now marking the name of the apple on the packages, so that buyers would know what they were buying, as all kinds of apples did not make equally good pies. Drying peaches was also found to be a very profitable business.

Mr. Bucke, said that he thought it would be a profitable business for Canadians to dry fruit for the West Indian market.

Mr. Beadle said a friend of his in California had received an order from England for thirty tons of canned apricots, showing that a large trade could be built up in fruits.

Mr. Bucke said there was a large vegetable drying establishment in St. Marys.

Mr. Smith said, in reply to a question, that the process of drying vegetables was similar to that of drying fruit. Black raspberries were a very profitable fruit for drying purposes.

SOIL FOR FRUIT TREES.

"What soil and what condition of surface soil is most conducive to the growth of apple and other fruit trees?"

The Secretary stated that soil which was adapted to some trees was wholly unsuited for others. For apple trees he should recommend a firm soil, abounding with lime. The soil made a great difference in the flavor and quality of the fruit grown on it. He could tell by the flavor of some apples what soil they were grown on. The sub-soil he preferred should be light and porous; but if he had to choose between a very light soil and a stiff clay he would take the clay for apple growing.

Mr. White found a gravelly soil some 8 or 10 feet deep produce a very abundant crop in his part of the country. Mr. Young's experience was that a clay loam, that is a clay sub-soil and sandy surface, was excellent. The trees, however, did not hold out so well as those in a stronger soil.

Mr. Geo. Leslie, of Toronto, thought a fine sandy loam was the most desirable.

Mr. Arnold endorsed Mr. Beadle's sentiments. He was certain that lime in the soil was a necessity, and, if it was not there naturally, it must be put there.

Mr. Woodward preferred clay and sand mixed.

GRAPES.

6.—What desirable varieties of grapes do well in Ontario?

The attention of the Secretary had been called to the Janesville variety. He thought its great point was that it ripened very early. The Hartford Prolific had many faults. It dropped soon, but sold because it was an early grape. The Champion was also very early, and he thought it had but one fault—it was good for nothing when it was ripened. He would eat it if he could get no better. Moore's Early grape ripened as early. It was as good as the Concord. The Massasoit ripened early and was a nice red grape, the clusters not very large, and the berries of fair size. It is best when just ripe. The Iona was *the* grape, in his opinion, for flavor and every good quality. He considered it the *ne plus ultra*, but it was late, and would not ripen in all parts of the country.

The President had never in his experience grown a good bunch of Concords at his home, in Prince Edward County.

Mr. Bucke said that the Burnet was one of the strongest growing grapes in the country, and was a great acquisition. He claimed that it ripened as early as the Concord, and was far ahead of it in flavor. Care should be taken that too many bunches were not allowed upon it.

The President thought very highly of the Brighton. Thought it lacked sprightliness, still it was a very nice fruit. The Burnet was the best grape he had ever grown on his place; it had beaten everything.

HOW TO KEEP GRAPES.

Mrs. J. C. H., of Yarmouth Centre, Elgin Co., writes to the *Fruit Recorder* :—

"There is a lady in this vicinity who is very successful in keeping grapes fresh for a long time. As I have not noticed any thing like it in the *Recorder* I thought I would tell you. It is the same as spoken of in the *Recorder*, only substituting white, dry, granulated sugar for sawdust. If a little sugar should stick to the grapes it will not spoil the taste of them, besides the sugar is not injured."

SUGAR MAKING IN ONTARIO.

In the *Canadian Farmer* of December 29th, 1880, is a very interesting account of the manufacture of syrup and sugar from the Amber cane, at Tilsonburg, County of Oxford, by the Ontario Cane Sugar Company, S. Joy, M. D., President.

It appears that this company has erected at Tilsonburg a suitable building, fitted up with the necessary apparatus for the manufacture of sixty tons of the cane every twenty-four hours, by employing two gangs of workmen. Last winter the company purchased a quantity of pure Amber cane seed, part of which was planted on thirty-seven acres of land, and the remainder sold to those who desired to give it a trial. The cane raised from this seed yielded about fourteen tons to the acre, and after being crushed and the juice made into syrup and purified, produced twelve gallons of syrup to the ton of cane, which sells at wholesale at 55c. per gallon, thus making the product of an acre in cane syrup worth \$92.40. Besides the syrup, the cane yielded thirty bushels of seed to the acre, which is worth as much as the same number of bushels of shelled corn for feed, while the leaves and threshed tops of the cane make excellent fodder. Farmers were paid three dollars per ton for the cane delivered at the factory which made the yield in cane and seed alone to the farmer equal to \$57 per acre, estimating the seed at 50c. per bushel, without putting any estimate on the value of the fodder.

The company have ascertained by experiment that if the cane is carefully housed it can be kept for months without losing any of its saccharine matter, the frost not hurting it in the least. This has induced the company to contemplate the establishment of branch factories for crushing the cane along the line of the railways running through Tilsonburg, and shipping the juice to headquarters to be manufactured into syrup and sugar.

It is gratifying to learn that these sugar manufactories are being set in operation in different parts of Ontario. There is no reason why we should not be able to make our own syrup and sugar, and thus afford to our farmers, operatives and capitalists another and most remunerative field of labor. This company show that the results of this season's operations will yield a dividend of thirty per cent. on the capital employed, and therefore propose to enlarge their capital to

\$25,000, and to add to their business the manufacture of glucose or grape sugar. Our readers will find some hints as to the profitability of this branch of the business on page 5 of the January number of this year.

Why should not other establishments of this kind be started in other parts of Ontario? It will require a large number of them to supply this Province with the sugar that is consumed by its inhabitants every year.

PROTECTING GRAPES.

A paper addressed to the Kentucky Horticultural Society by Col. Bennett H. Young, of Louisville, Ky.

The question of protecting grapes from the ravages of insects and birds, and injury from heat and rain, has excited great interest for the past few years. Having experimented fully with two of the most prominent plans, I trust that I will not be considered out of place for laying before your honorable society the results attained. I learned from Mr. Thomas S. Kennedy the idea of using mosquito-net bags, and, in most instances, I have found them an excellent preventive against curculio. There are two difficulties with these where black grapes are concerned. First—The dust or dirt settling on the netting, which adheres close to the grape, destroys the bloom on the berry, and consequently affects the beauty of the fruit. Second—Birds can pick the grapes through the netting, and an injury to two or three grapes on the bunch, where the juice runs along the netting, mars the whole bunch. This last objection does not apply to the use of the netting with light colored grapes. The introduction of white grapes has proven a great blow to grape-loving birds, for I have never yet observed one that was good enough for their eating. My plan in using the netting has been to tear off a piece, say twelve inches wide, double it over and sew it on the open side with a sewing machine, and then run a seam across one end. My little girl last year made 1,600 of these bags, and did not complain of the amount of the work. Thus made they will last three years or more when put away. My boys, nine and eleven years of age, put them on the bunches and gather them at the top, and tie a cotton string around the ends at the top of the bunch. The boys could bag 300 bunches in a morning without feeling over-worked. Oftentimes I found it real fascinating work myself, and first-rate recreation for a June morning. The bags were put on when the grapes were about one third grown. The second method is that of inclosing in paper bags. When Mr. Bateman of Ohio, first suggested this novel plan, I considered it an absurdity. I could not imagine how a bunch of grapes, shut off from sunlight and air, could properly mature with a good color and flavor. I resolved to give it a fair trial. One fact is worth a great deal more than many theories; and starting out with prejudice against Mr. Bateman's plan, after a first trial I must confess myself a

convert and its advocate. In 1879 I put on 2,000, paper bags—in many places, on the same spur, alternating with the netting and bags. The results were most satisfactory. The grapes ripened evenly with the best of coloring, fully as early as when not inclosed, and with a flavor equal to any grown without the bags. More than this, the bunches came out of the bags with a splendid bloom and as perfect every way as it is possible for a grape to be. The paper bagging prolonged the season for nearly a month. They are very cheap, and are more easily put on than the netting, and the grapes cannot be touched by the birds. The bag is slipped over the bunch when the grapes are about one-third grown, folded together around the stem, and a pin stuck through the folds. This is all the fastening necessary. Care must be taken, however, to make a small slit in the bottom of the bag, for, unless this is done, when a heavy rain falls, half a pint of water will get into the bag, and, standing around the grapes, will injure them, or by its weight tear the bag off. Merely pierce the bottom with the blade of a knife. Grape growers are greatly indebted to Mr. Bateman for this simple but wonderful protection to the fruit. In this part of Kentucky, between curculio and birds, there is little left to the grape grower. These bags are absolute protection from both. I also found grapes so inclosed in the netting and bags less liable to mildew. Those in paper bags were more favored in this respect than those in the netting. Those who have not tried either of these plans can not imagine the difference in the perfection of fruit secured with their use. Large bunches can be taken out of the bag without a single imperfect berry, and with a bloom upon them that is simply magnificent. Fifty cents' worth of paper bags will be sufficient for an experiment. Putting them on will require only a very short time, and, once tried, they will never be neglected.

CARBOLIC ACID FOR INSECTS.

The time has almost come again when "the little busy bugs" will open up their summer campaign, and dispute with the "lords of creation" for the "fruits of the earth." Allow me thus early to call attention to an article, the merits of which everybody knows, but which many dare not use—I refer to carbolic acid. Prepared as indicated, it cannot, I think, hurt the most delicate house plant, and it is sure to kill insect life.

My plan of preparing is as follows:—I obtain crude carbolic acid; I use it in this form because it is stronger and better for the purpose, and costs but very little (about 25 cents per gallon, I think). I pour a quantity of this dark crude acid into a quantity of good strong domestic soft soap; stir well together, and allow to stand for a few hours. I then test the compound by mixing a little of it in soft water. If too much acid has been added, oily particles of carbolic acid will be observed floating on the surface. This shows that more acid has been put in than the soap will incorporate or "cut," and more soap should be added to balance the excess of acid. No more definite rule can be given, as so much depends on the strength of the soap. Two or three teaspoonsful of the acid to a quart of soap may be first tried. I prefer to make as strong with acid as the soap will perfectly cut. A very little practice will enable any one to compound it correctly. The

refined acid may be used when the crude is not at hand. When prepared as above, make a moderately strong suds, and apply with syringe or sponge. In using on very delicate plants, should any fear be felt for the plants, they can be rinsed off after a few minutes. My first and eminently successful use of this compound was some years since, on a block of young cherry trees, some fifty thousand in number. The black aphid "came down like the wolf on the fold," only "they came not as single spies, but in whole battalions." It soon became an interesting question as to who was the proprietor of this particular block of trees—myself or the "bug Ethiopian." A disinterested observer of judicial turn of mind, judging from the general appearance of things and the very "at home" air assumed by the bugs, would have said that they had the best case. He would, at least, have been compelled to admit they had "nine points of the law" (possession) in their favor. I never saw the like before—the trees were alive with aphid. The only scarce things on the trees were leaves, there being hardly enough to afford "standing room" for all the dusky guests. However, not being a convert to the doctrine of "squatter sovereignty," I declared war, and failing to decrease the number by ordinary means, I compounded soft soap and carbolic acid, and with a single application exterminated the enemy.

—T. T. S., in *Gardner's Monthly*.

THE GROWING OF PEAS.

On the 7th of April last I planted 17 varieties of peas in rows of same length, adjoining each other, on a good black, sandy soil, which in former years had been well manured and which was in good condition the past season. The following table will give the date of first picking as nearly as may be, and the height of vine. Notes below will tell of their quality and productiveness:

<i>Varieties.</i>	<i>Height in inches.</i>	<i>Date of first picking.</i>
Landreth's Extra Early, - - -	30	May 26.
Miggett's Extra Early, - - -	30	May 26.
Philadelphia Extra Early, - - -	30	May 26.
Carter's First Crop, - - -	30	May 27.
Tom Thumb, - - -	30	May 29.
Alpha, - - -	30	May 29.
American Wonder, - - -	8	May 30.
Blue Peter, - - -	10	June 2.
Advancer, - - -	30	June 5.
Premium Gem, - - -	16	June 5.
Little Gem, - - -	16	June 6.
Dwarf Marrowfat, - - -	48	June 16.
Telephone, - - -	54	June 16.
Champion of England, - - -	54	June 19.
Forty Fold, - - -	54	June 19.
Challenger, - - -	36	June 20.
Yorkshire Hero, - - -	30	June —

The height of all is probably greater than they would average on most soils. The time of first picking is quite accurate with early and dwarf kinds, but less so with the tall and late ones, as they ripen more slowly and fewer at a time.

Landreth's Extra Early, Miggett's Extra Early and Philadelphia Extra Early are different stock of the same pea. The two former are not distinguishable, being nearly pure, differing in this respect from the latter. The quality is excellent; productive, and best early pea for the market gardener.

Carter's First Crop is much like the former, but has smaller pods.

Alpha and Advancer being wrinkled peas are among the finest in quality, to my taste far excelling the smooth varieties, particularly the Marrowfats, which are rank and strong. For a pea to stick, I should choose the Advancer before all others.

Little Gem and Premium Gem are almost if not quite identical, the advantage in earliness and productiveness, inclining towards the latter. They do not usually grow more than twelve inches high, and for a pea not requiring sticking, on account of its early maturing, productiveness, quality and size of pea, I would choose one of these two. A little sticking however will do them good.

Of Blue Peter almost the same can be said as of the former, and some gardeners take it in preference, but I think it does not fill into its pods so well and is therefore not so productive to the consumer, but it is three days earlier.

Telephone is a new English pea and grows extraordinarily large pods of fine quality. My tests of this and other late tall kinds were not satisfactory, on account of their growing much higher than their sticks and being thrown over by the winds and rains. It should not fail to be tried by all who have an interest in the subject.

Challenger did not strike me as presenting any gain over the other better known varieties.

Champion of England still holds its own as one of the very best late tall peas. Productiveness and quality entitle it to this high rank.

Forty Fold is very similar to the Champion; it probably produces larger peas, but as remarked before, an exact comparison of these late peas could not be made.

American Wonder, which I have left to the last, is a little wonder. It was loaded with pods, so much so that they were more conspicuous than the vines, they being the dwarfest of all. As might be expected it ripens up all at once—all its pods could be picked in four or five days, certainly in less than a week. It can, of course, be planted very close, and will please those who want a very dwarf pea. The quality like all wrinkled peas is fine. I notice an Eastern seed establishment advertising this to the trade and speaking of it as growing twelve to eighteen inches high. The true American Wonder in a moderate soil will not grow over six to eight inches. There is a pea of English origin called the Little Wonder, growing taller, which will, I fear, be sold for the American Wonder.—*Indiana Farmer.*

THE VAN WYCK SWEET CRAB.

The best of all crabs is Van Wyck Sweet Crab. It is a seedling that originated from some old crab trees growing upon the estate of Van Wyck, which had dropped their fruit; the seeds of some germinated, and young trees were carefully transplanted and cultivated. Among the number was one which was very much admired for its beauty, size, and the sweetness of its flavor. It was as handsome as a finely colored pear, with a delicate bloom upon it which resembled a plum. It had the appearance of a crab, and yet it was sweet as honey. Its general appearance and characteristics gave rise to a discussion among pomologists as to whether it was a crab or an apple. In fact, the idea generally prevailed that the crab, being in the first instance a hybrid from the apple, had gone back to its origin. Among the number who claimed it as a crab, was Mr. Fuller, and Mr. Chas. Downing, both deciding it to be a crab. But Van Wyck's crab-apple would be just the same fruit if the word crab was omitted and it was called an apple. It lacks the acid flavor which we have always considered essential to the crab, although it retains the long slender stem.—*American Cultivator*.

CORRESPONDENCE.

MONEY WELL SPENT.

Noting your kindly reminder in the *HORTICULTURIST*, I hasten to comply, and therefore enclose you the usual fee of one dollar, which to me I can truly say is one of the pleasures of the season, and further, is an investment the interest upon which is beyond computation, when taking into consideration the important work in which the Association is engaged. With regard to the plants already received, being comparatively a new member I have very little to report. The Burnet grape with me appears to be very close jointed, and consequently a slow grower. It did not fruit the past season. The Ontario apple is doing well, having made a fine growth the past season, as did also the raspberry plant received last spring. I wish the Fruit Growers' Association continued and increased success.

GEO. A. AUSTIN, *Simcoe*.

THE SORGUM QUESTION AGAIN.

I am satisfied that sorgum culture if properly managed will pay. I made fifteen gallons of first class syrup. There is a ready sale at 80 cents per gallon. I planted on the 23rd of May, and it was ready for the mill the 20th September; stalks from nine to eleven feet high. The ripest seed made the best syrup, but not so much in quantity. Now the next thing is to find out how to make the sugar. The longer it stood in the stalk the better the syrup. The only question is how to make sugar. When the plant attained about two feet in height it was attacked with a green plant louse that stayed in the centre until the seed stalk pushed them out. Now I hope to hear from some of the members more experienced in sorgum culture, and especially in the manufacture of the sugar.

JONAS NEFF, *Port Colborne*.

The Canadian Horticulturist.

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WINTER MEETING.

SECOND DAY.

The session began at 9.45 a. m. There was a large attendance of delegates, among whom were many who were unable to be present on the first day.

Mr. A. M. Smith, chairman, presented the report of the committee on fruits.

Mr. Page, chairman, presented the report of the committee on vegetables, which contained a mass of valuable information. Referring to the varieties of potatoes suitable for growth in Ontario, the report mentioned the Alpha, seedling from Early Rose, clear white flesh, fine grained, decidedly excellent flavor. Beauty of Hebron, very early, tubers good several days before Snowflake; flesh solid; yield enormous. This variety will soon supersede the Early Rose. Brownwell's Beauty is a good cropper. Brownwell's Superior ripens late; not desirable for table. Compton's Surprise, flesh white and sound. Early Ohio, seedling of Early Rose, but several days earlier. Early Snowflake, ripens a week after Early Rose, fine flesh, good cooking potato. Grange, new seedling, kidney shape, yields well, fine for table. Improved Peachblow, cross between Excelsior and Jersey Peachblow; late but good keeper. Sutton's Magnum Bonum, an English variety; great productiveness; late keeper; kidney shaped. Washington, new variety; tubers long; fine grained; productive; few days later than Early Rose. Treble X, firm; cooks well. White Peachblow, seedling of a peachblow; very late; dry and mealy. Of sweet potatoes, Yellow Nansennod, Bermuda and Early Peabody are given in order of quality. These three are best for Ontario. Growers set out plants early to be successful. Sweet potatoes succeed best in light, thoroughly worked soil, well manured; they want all the sun heat they can get. Peanuts

can be grown in our light loamy soils, but probably the season is not warm enough. The best soil for potatoes is a rich loamy sand, not too wet nor cold. The best fertilizing elements are nitrogen, phosphoric acid and potash. Nitrogen is obtained from the air, phosphoric acid from bone meal, and potash from wood ashes. Chinese Yam. This vegetable is valued much as a flowering vine. The tubers are valuable for food, boiled or roasted. They will grow a second season if left in the ground.

The root crops have become of importance in Ontario. The sugar-beet ranks high as food for cattle. In England the mangold-wurzel is taking the place of turnips as food for cattle. Root crops are of benefit in beeping the land clear.

In reply to questions, Mr. Page said he thought Paris green was best applied mixed with plaster of Paris. The Chinese yam could be procured from Bliss, New York. Mr. Arnold thought from experience the Chinese yam was perfectly useless. Mr. Saunders, London, thought the best way to apply Paris green to potatoes as a destroyer of potato bugs was by mixing it with water. Mr. Saunders spoke of a substitute for Paris green called London purple, the main ingredient in it being arsenic; but it was variable in its action, and not so good as Paris green. Mr. Jarvis, of Stratford, thought the Chinese yam was a failure, and the sweet potato a delusion and a snare in this country. Respecting the potato bug, Messrs. Buck, Ottawa, and Jarvis, Stratford, were hopeful, saying they believed the insect was gradually disappearing from those sections. Mr. Saunders thought the insect enemies of the bug were making great war on it, and the climate last year had been adverse to its production. This appeared to be the opinion of a majority of the gentlemen present.

Mr. Page was pleased at the discussion his paper had brought out, and believed the yam would make a pretty creeper, if otherwise worthless.

Mr. Woodward thought the Chinese yam would not be a success as a vegetable, and that this climate is not suitable for the Colorado beetle.

ROSES.

Mr. Beall, Lindsay, named twenty-four varieties of roses.

Mr. J. Wellington considered the Duchess of Edinburgh an excellent rose. The impression that Canada is not a country for roses is not

well based. The ground should be carefully and deeply prepared, and bushes should be well cut back, as they require suitable winter protection.

Mr. Beadle thought that in the cloudy climate of England the rose attained to greater perfection than here, as the hot sun seemed to burn up the flowers, and would recommend shading during mid-day; knows a person who shades with canvas; the cultivators are hybridizing with the Noisette, and expect a new strain of great value.

Mr. Bucke thought the rose might be made more hardy if the hybridist went back to the initial step, and crossed the glorious roses of England and France with the native dog-rose.

Mr. Dempsey gave his experience. He planted roses in the shade, and finds that if a healthy, vigorous growth is maintained there will be very few insects; prefers cow manure.

Mr. Arnold thought the growers should begin at once and cross the foreign with the native wild rose. Burned sod makes the best manure for the rose.

Mr. Saunders would apply Paris green as a remedy for the worm, which eats the half open buds; would also apply it for the rose slug.

Mr. Woodward uses whale oil soap for rose insects.

Mr. Bucke read a paper on nut-bearing trees, as follows:

NUT BEARING NATIVE TREES.

"Can any of our native nut bearing trees be profitably cultivated, either for nuts or timber, and where is the northern limit of each?"

The above question has been put into the hands of every member of the Fruit Growers' Association, and I trust it will meet with a response not only from those who are assembled here to-day, but from others also who take an interest in forest tree culture,—a subject which is awakening a deep interest, not only in Ontario, but in all parts of the Dominion, where the denudation of both the public and private domain is being carried on to an alarming extent. But deeply as we are interested, who once had, and are losing our forests, still more will those be exercised over this question who have, are, and will be settling in our northwestern plains, where, from the sweeping forest fires and other causes, forests such as we have "loved and lost" have had no existence "in memory of the oldest inhabitant."

Although the above question only calls for remarks on nut bearing trees, others have a proportionate value, and any remarks with regard to the cultivation of these, will apply equally to the seed and cone producing varieties as well.

The BUTTERNUT has the most northern limit, which is found to begin at the southern end of Nova Scotia, running north it passes about midway through New Brunswick, crossing the St. Lawrence River at Quebec and extending some thirty miles to the north of the city of Ottawa, and from thence strikes the southern end of the Georgian Bay. This tree is the hardiest of our nut-bearing species, and the area of its growth is quite extensive, and for all practical purposes it could by replanting be maintained for all time to come. Every autumn the nuts are sold by the two bushel bag on the Ottawa market, but I am unable to quote the price, never having purchased any. The timber of this tree loses the name of butternut when it is cut into boards and scantling, and assumes that of grey walnut. The expert cabinet maker, by a certain staining process, is enabled, after the wood is worked up, to make it so resemble black walnut that it requires a practical eye to tell the difference.

With regard to the cultivation of this tree, I speak from practical experience when I state it is one of the very easiest grown I know of. If given anything like a square chance it will produce nuts after ten years planting, and I believe a good saleable tree may be had of 18 inches through, at from twenty-five to thirty years from the nut.

The seeds are not in great demand at present, though I feel sure if they were advertised like other commercial products a market for them could be created, both for home, the Northwest and European planting, and I make no doubt the United States alone would absorb a large quantity, if nurserymen, private individuals and farmers knew where they could be procured.

Besides the value of this tree for timber and nuts, the feathery palm-like spread of its graceful leaves and clean looking stem, makes it a great object of beauty on the lawn, and for a wayside tree or a pasture shelter there is nothing gives a much denser shade, though probably if planted along our roadsides the ubiquitous boy might injure it whilst robbing the trees of their autumn nuts. Those gathered early in the season make a pickle fully equal to the walnuts of English manufacture for which Cross & Blackwell are so widely celebrated.

This tree has another advantage for wayside and hedge row planting, it never suckers. The bark is also often used by farmers' wives for imparting a rich brown to their home-spun yarn, before it is manufactured into stockings, or woven into fabrics.

BLACK WALNUT.—*Juglans Nigra*.—This tree closely resembles the former in shape, and the general appearance of its leaves, so much so that people accustomed to see them side by side are scarcely able to distinguish them, but by running some leaves through the hand the black walnut gives off a strong scent, whilst the butternut is odorless, the nut of the former is more spherical than the latter, and does not contain so much kernel as the former. This fact however does not detract from it as a suitable nut for a pickle. It is scarcely necessary to state that the wood is much more valuable and that its crotches and roots are greatly sought after for cabinet work, gun stock, etc., and all purposes for which it is required; it brings a high price in the market.

This tree is only indigenous to a small area, extending from a point near Port Franks, on Lake Huron, running north of London nearly in a line with the Grand Trunk Railway to Toronto, and extending along the lake shore as far east as Cobourg. I am satisfied, however, these limits could be considerably extended, but even the area mentioned would give a good many thousands of acres of waste lands and side roads for planting, should no one feel disposed to trespass on the best part of his farm for the cultivation of this most valuable of all Canadian trees.

SWEET CHESNUT.—This tall and handsome tree, the leaf of which much resembles the beech, but is more glossy and attractive, has a still more southerly range. The northern line of growth crosses the Detroit River a little above Windsor, cutting across the Peninsula to Long Point. Taking a northerly direction from this point on Lake Erie, before Port Stanley is reached, the line strikes near St. Thomas, running north of Hamilton and Toronto, curves about forty miles north of Lake Ontario and runs into that lake a little further east than Port Hope.

The nut produced by this tree, though frequently sold in stores, has not a very high commercial value, as it is smaller than those cultivated in Europe. It however serves to indicate in the same way our wild grapes do, that the better varieties might be easily grown.

Its wood is chiefly used for furniture in ladies' boudoirs and bedrooms, as it gives a bright and airy appearance to a room. Its grain is wide and open, and when oiled and varnished has a pretty light yellow color.

HICKORY, (*Carya Alba*).—The northern habitat of this tree is probably on a line with the butternut. The shell bark variety finds its chief home in the woods of the County of Lambton and West Middlesex. The tree is not easily cultivated, as it is a slow grower and difficult of transplantation, but its wood is so valuable where its toughness and elasticity are required that it commands a high price. It is principally used for tool handles, carriage spokes and fellies, and if grown in sufficient quantities would readily find a foreign market at remunerative prices. This tree is usually cut in its juvenile stages, when from four to six inches through at the butt, and consequently could be advantageously grown in plantations between trees used at a more mature age, which would be relieved by removing the hickories as required. If grown as proposed the nuts could be dropped where it was intended the tree should stand. The foliage of the hickory is of a light pleasant green; the rich leaf would add much to the beauty of the home surroundings. The nut deprived of its shell may be obtained from all itinerant newsboys on boats or cars, as no doubt my hearers can willingly testify.

I would strongly urge upon our farmers and others, especially those in youth and middle age, to begin at once, if they have not already done so, and prepare a suitable piece of ground, well fenced with some durable material such as cedar posts and barb wire, and obtain and plant some of the nut bearing specimens I have spoken of. Any soil suitable for corn or wheat, having previously had a hoeing crop such as potatoes or mangolds would suit admirably for the purpose. A half acre well plowed and planted with nuts would raise enough young trees to cover several hundred acres, or if used for roadside planting would extend a number of miles. The cost of seed, care and culture would scarcely be felt, while the beauty insured would be a lasting one, and would hand down the name of the patriotic individual who went into the business for many generations. Seeing trees grow is a thing that all lovers of nature take pride in, but to grow them oneself is a pleasure indeed. Before the white man invaded this continent all the nuts alluded to were used by the North American Indians

as an article of diet, and ancient records testify that the quantity consumed at one meal was incredible, and certainly would be unsafe for more civilized stomachs.

I have omitted to mention the acorn or quercus family, of which there are five varieties, as I do not suppose they come within the meaning of the term "nut bearing" trees.

I cannot close this paper without a further strong recommendation to all those who have not given this matter the attention it deserves, to begin at once to plant, and to plant early and plant often, and especially to commence with the nut-bearing trees. The collection of their seed is easily made, much more so than that of the smaller seeds. My friend Chief Johnson can supply any amount of either black walnuts or butternuts, and they will be found the handiest and easiest to plant. It would be well also to secure at some of the shops at once, before they become too dry, some sweet chestnuts, and pack them in moist sand, keeping them in a cool cellar until spring, when they should be planted early, in a deep rich bed, about an inch and a half deep. I will conclude this paper with a few lines written for the occasion :—

No man who owns a house or hearth,
A rood of land, a speck of earth,
Can say his duty he hath done,
If when the eve of life hath come,
He cannot point to some cool shade
By tree, himself hath planted, made
Its youth his youth in union sprung,
In middle age its praise he sung,
And ere his mortal coil shall dwell
In tenement of coffin shell,
Beneath its shade a spot he'll choose,
Where autumn skies and autumn hues,
Shall blend in harmony on high ;
And from a noble canopy,
His only epitaph shall be
The waving sigh of that dear tree.

Chief Johnson said that His Excellency had obtained nuts of the black walnut from him to send to Scotland and Hyde Park, England. He has an offer of \$1. per foot for the timber.

Chief Johnson presented a two bushel bag of curious sweet corn.

Mr. Woodward moved that the thanks of the meeting be tendered to Chief Johnson for the same.

A vote of thanks was tendered Mr. Bucke for his valuable paper.

It was decided to combine the seventh and eighth questions, viz : (7) The best variety of hardy climbing shrubs. (8) The best varieties of clematis, and the best methods of treatment.

Mr. Wellington, of Toronto, read a very valuable paper on the subject of clematis, and was accorded a hearty vote of thanks therefor. This paper will be published in full in the Annual Report.

Mr. Saunders spoke of the wild yam, having beautiful foliage, as a climbing vine. Mr. Arnold mentioned the Duchman's pipe, wistaria and trumpet flower as hardy climbing shrubs.

Mr. Wellington said the *Amelopsis Vetchii* was a good climber.

Mr. Beadle was favorably impressed with the honeysuckle as a climber. Sweet-scented honeysuckle was quite hardy, and bloomed all through the season.

A. D. Allan, of Goderich, presented the report of the committee on fruits. Owing to the lack of space it is impossible to give this interesting report, which deals with a very large number of fruits, and makes the point that cranberries, provided suitable ground is had, are an extremely profitable crop. Also that the Corinthian grape, which makes the currant of commerce, had been raised in Ontario, and suggests that it be further experimented with, as a new commercial industry might thereby be opened up.

Mr. Morris, of Fonthill, presented a report, in which he spoke very strongly in favor of the Pocklington grape, which he is cultivating, and said it was a seedling of the Concord, strong grower, sweet, good keeper, with large bunches.

The ninth question, "Are there any Canadian wild flowers worthy of cultivation in our gardens that have not been introduced," was next discussed.

Mr. Saunders recommended the Liverwort or *Hepatica*, which was a very pretty early flower. Following was the Bloodroot, a pretty white flower, valuable for its foliage. Again, we have the Phlox, free bloomer and of pleasant perfume. The Dog-tooth Violet was a pretty flower, early and elegant in form. Another pretty flower was the Black Cohosh, a very showy plant. Again, we had the Lobelias.

Mr. Arnold would like Mr. Saunders to cross the European and American *Hepathicas* and present the members of the Association with a plant. He was a great admirer of the Harebell.

Mr. Saunders also recommended the common blue violet.

Messrs. Saunders and Beadle said that they believed many had tried to grow the Trailing Arbutus in gardens and had failed, as it needs a peculiar kind of soil. It is found in Nova Scotia and New Jersey.

The next question taken up was, "Which are the five best and most profitable varieties of potatoes?"

Mr. Arnold mentioned Brownell's Superior, Dempsey, Rose, Climax, Ruby and Eureka. Some potatoes would thrive one year and not the next. Few varieties were favorites more than two or three years.

Mr. Page would choose the Alpha for an early potato, the Beauty of Hebron, Snowflake, White Peachblow (which grows earlier than the Jersey Peachblow), and the Threble.

Mr. Jarvis said he had tried a great many varieties, but came back to the Early Rose.

The following committees were appointed to report at the next winter meeting:

On Fruit Packages—Messrs. Dempsey, Pettit and Smith,

New Fruits—Allan, Holton, Arnold and Smith.

Vegetables—Page, Croil and Taylor.

Ornamental Trees and Shrubs—Leslie and Arnold.

Roses—Beall, Dempsey and Beadle.

Hardy Flowering Plants—Gilchrist, Forsyth and Bruce.

Climbers—Wellington, Arnold and Saunders.

The subject of best peas was then taken up.

Mr. Arnold said that in selecting five varieties of garden peas it will be advisable to have them follow each other in season of ripening, and in my opinion the earliest and best of all peas grown on this continent is Bliss' American Wonder. This variety is a cross between those two grand peas so well known to most lovers of good garden peas, viz: McLean's Little Gem and that tall-growing, late, but delicious and productive old pea, Champion of England. The Wonder is very early and dwarfish and very good. Second in season of ripening is the Alpha. This is a very good early pea, but it is a tall grower and requires sticking; this in my opinion is a great objection. Third, McLean's Little Gem, a very delicious dwarf-growing productive pea. Fourth, Hayes' Dwarf Mammoth. This pea grows about two feet high, and if planted at the same time as American Wonder would ripen about three weeks later. It is a very large, delicious and pro-

ductive pea. Fifth, that grand old pea, Champion of England. If it was not for its rank growth and its sometimes being liable to mildew in very hot weather, it would have no superior in its season. It ripens about the same time as Hayes' Dwarf Mammoth. On good rich soil and sticks it generally bears good crops.

Mr. Saunders was an admirer of Mr. Arnold's pea. Mr. Jarvis favored the Champion of England. He had not had good success with dwarf peas. Mr. Beall thought Mr. Arnold's pea was a very fine one.

A general discussion was then entered into on various subjects.

Mr. Orr, of Wentworth, spoke on the subject of peaches and strawberries. He said it was likely peaches would fail them, and he wished for information concerning strawberries. The Secretary pinned his faith on the Wilson strawberry. The President, who is a large strawberry grower, cultivates the Wilson almost exclusively for market.

The Secretary moved a resolution that it is the opinion of the Association that it is desirable that the law protecting birds be so modified as to permit fruit growers to shoot such birds as the robin and cherry bird, when their crops are invaded by them. Carried.

Mr. Beall had believed an open umbrella fixed near the fruit an excellent thing till he tried it; on visiting this scarecrow, however, he found a dozen or so robins roosting under it. He thought, therefore, that this plan was a failure.

The President believed that live cats tied to a string at intervals would act as a good scare; he tried it, but the dogs scared the cats more than the cats did the birds.

RASPBERRIES.

The President found in his part of the country that the Philadelphia berry was the most hardy. Herstine did very well. The Secretary said that the great defect of the Philadelphia was a peculiar dingy bloom on them which gave strangers the idea that they were mouldy.

PEACHES.

Mr. Orr, when he first started fruit growing, had intended to lay out twelve acres with peaches. He did not then know anything of the yellows. He had since been much discouraged by this disease. In his district the majority of orchards around were much affected by the yellows. He was told that clay land was preferable to sand. The Early Canada was a fine peach and doing splendidly; it was not,

strictly speaking, a clingstone. His Stump the World was an excellent fruit, pure and clear, and very good for canning. Mr. Woodward said the Salway was a very late peach, ripening two weeks after any others. He had eaten them as late as the middle of December. Mr. Orr had shortened in his trees on a rich, strong soil; it was found advantageous when the growth was heavy. The Secretary said that shortening in was found a great improvement in the Niagara district. It made the fruit larger in size and better. It made a difference in the color of the fruit by admitting the sun and air. He believed that the region of the peach could be extended by growing seedling trees from seed ripened as far north as possible.

The next meeting will be held at Owen Sound, on the 24th of August, 1881. This region is noted for its great crops of plums, and it is hoped that there will be a large attendance of members from a distance, who will receive a most hearty welcome from the members at Owen Sound.

WOOD ASHES vs. PEAR BLIGHT.

BY RUSTICUS, CLINTON.

One of the fruits which attains its finest development in our favored Huron tract is the pear. I purchased a bushel of Bartlets on the street here which averaged 9 inches the longer circumference, many of the specimens attaining 12 inches, some even 13½. Other varieties flourish correspondingly. The largest Seckels I have ever seen were from a farmer's garden in this neighborhood, and the Flemish Beauties are prodigious.

Yet this fascinating cultivation has its drawbacks. We are not exempt from the visitations of the dreaded blight. Some seasons it is rarely seen; last season it was peculiarly prevalent and destructive. This outbreak of the disease most feared by the pear grower seemed to bear out the remark of Downing, that "the predisposing cause is to be looked for in the season previous, and that attacks of blight may be expected the summer after a sudden and early winter has succeeded a damp and warm autumn." These conditions had been exactly fulfilled in the late attack of blight. Three-quarters of the preceding October had been summer weather here, the mercury averaging 80° in the shade at noon, and all vegetation showed a disposition to make second

growth. On the 23rd the temperature stood at 75°, and on the 24th it was literally cold and snowing. The rest of the month we had freezing weather. Apparently as a consequence of all this, scarce an orchard or garden in this section escaped the blight last summer. The Flemish Beauty of course suffered most. Many trees in their prime were nearly destroyed. Bartlets and Seckels went almost unscathed.

In my own garden not one of my sixteen trees, embracing both dwarf and standard, were touched, while just over the fence in all directions were blighted trees. I have been casting about in my own mind for a reason for this singular exemption. It was not that my trees were of varieties not subject to blight, for among them were several Flemish Beauties. It was not that they were too young, (though they have hardly begun to bear,) for elsewhere were trees as young or younger blighted. It was not because they stood in cultivated ground, for in garden and sward trees suffered alike. It was not that my soil was drier and more congenial, for it is not underdrained. The only difference of which I am aware in the treatment of my own and the surrounding trees, is that mine have regularly received the caustic ashes from the household fires. These have been scattered to the extent of a bushel full at a time around each tree, and the process has been repeated several times in the year. Is this the cause of my exemption from blight? While aware of the danger of insufficient data and hasty generalization I can conjecture no other. If unleached ashes are, to some extent at least, a prophylactic against the blight, how do they act? Not, I apprehend, as a specific antidote to the poisonous virus. Is it not rather that they engender such a healthy habit of constitution that no appropriate nidus for the baneful germs of the blight is found?

I present this case with all diffidence, presuming upon the invitation you have extended to your readers to send communications on matters of common interest, and hope that it may serve to elicit the views of more experienced readers of the HORTICULTURIST upon this vexed matter.

There is much work to be done in the fruit garden that may be preparatory to the busy time of spring. All such work as the getting ready of the trellises and supports of grape vines, raspberries, etc., may be done now with great advantage.

THE BERBERRY FOR HEDGES.

BY H. QUETTON ST. GEORGE.

About berberry as hedge plants, I still adhere to my opinion that ultimately they are the best. They require a little protection from cattle for two or three years, principally in spring, when the tender shoots are greatly relished by sheep, and they come on very slow if the grass is allowed to grow over their roots. After two or three years the plants in ordinary soil are strong enough to defy the attacks of cattle or sheep, and the grass seems to have very little effect on them, their roots striking very deep in the ground. They stool very freely, and if planted one foot apart very soon close so as to prevent pigs or other animals from going through, whilst they interlace above so that cattle cannot see daylight, and do not attempt to get over or through them. They will generally attain a height of from six to seven feet in three or four years—I mean plants taken from the nursery two years old. Strong suckers will often shoot as much as four feet in one season. I have now several miles of them here, and prefer them to any other plant for hedges in dry ground; in low, marshy soil I found they would not do.

I have also some buckthorn, but I find it very troublesome to clip their strong branches every year, and as the sheep are very fond of nibbling their leaves as high as they can reach, I find it very hard to keep them close near the ground unless they have been planted very thick, and in that case the plants are never very strong to run tip. I would say that the great points of the berberry are growing so thick and strong near the ground and requiring no clipping or care of any kind when once well established, which takes about three years. Considering the great scarcity of timber, and the trouble and expense of wire fences, I would strongly recommend planting berberry wherever the soil is not too wet. In marshy places a cedar hedge planted alongside of a picket fence, which it soon embraces and supports, makes a very strong barrier and a most valuable screen or shelter from the wind.

As will be seen by a perusal of Mr. St. George's article, he claims advantages for the berberry which cannot but induce the attention of even the most prejudiced. In the berberry we have a *permanent* fence.

CORRESPONDENCE.

MCINTOSH RED APPLE.

I send herewith a sample of the above apple, which promises to be the best winter apple I know of for this and other cold sections. It is a native of Dundas, our neighboring county. I have seen the parent tree, which was taken from the roadside on the edge of the timber with nineteen or twenty more and set in the garden of Mr. Allen McIntosh, then owned by his father, some eighty years ago. All the rest of these trees have been dead for thirty or more years. The old tree is as bright and smooth as a young tree and still bearing. After a description of the Wealthy apple, Dr. Hoskins, of Newport, in the last Montreal Horticultural Society's Report, speaking of the McIntosh Red, says: "Here is a larger and apparently longer keeping apple that is hardier than the Fameuse. I am rather astonished that this variety, originated as it did in Canada, should never yet have appeared upon the tables of the Society's exhibitions. Mr. Aaron Webster, of East Roxbury, Vt., calls it a glorified Fameuse, with the color and quality of that variety. A doubled size, a hardier tree, and the same defect of 'spotting' in unfavorable seasons." I exhibited a poor sample of the fruit at our winter meeting of 1880, when, although it was only classed third rate, I had no hesitation in recommending it as one of the best for cold localities. The tree is perfectly hardy, a vigorous grower, and the fruit keeps well till April. The owner of the original tree says he remembers it well for fifty years, and that it has never missed in a single year, frost or no frost, to bear a good crop of apples.

JOHN CROIL, *Aultsville*.

NOTE.—The apple came to hand in a very damaged condition, the package well smashed and the apple likewise. It had been a beautiful apple in appearance, of large size and high color. The flavor was "good." It deserves special attention in northern localities.—ED.

NUT PLANTING.—In answer to D. B. Hoover's question in regard to nut planting, I would state that if there are no squirrels to dig them up I prefer to plant the nuts in the fall, just before the ground freezes. If, on the contrary, there is danger from the squirrels, after having gathered the nuts and hulled them, place them in a pile before they become dry and cover with four or five inches of earth. In the spring, as soon as the frost is out of the ground, plant where you want them to remain. I find that by transplanting nut trees there is danger of injuring the tap root, thereby destroying the growth of the tree for two or three years. The larger the nuts used for planting are, the larger and stronger your trees will be.—JONAS NEFF.

CAUSE OF BAD FLOWER SEEDS.

BY N. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA, ONT.

Many are the complaints made about seedsmen selling bad seeds; I sow hundreds of papers of them every year from different seedsmen and collectors but very rarely find them bad, even with the most minute seeds. There are two great causes for this failure, and the directions that I give, if attended to, will obviate the necessity of seedsmen inserting such clauses in their catalogues as that they will not be responsible for failures, and will also save them much annoyance.

In this section (Ottawa) it is time enough to make a hot-bed the last week in March or first of April. Sooner than this for half-hardy annuals is of no advantage, as planting out is not safe before the 24th of May, and should not be done before the first of June. Usually at this time of the year we are free from night frost and the cold, bleak winds of early spring. I shall suppose your hot-bed made of horse manure, heated and well mixed, the fresh with the more rotten, so that your bed will sink evenly, having the box fitted to within six inches of the top (don't leave it like a cellar). In a few days the bed will be warm enough to receive the soil, but if not sufficiently heated a bucket of warm water will greatly facilitate matters. Put the soil close to the sash; if you have no prepared soil put in the frozen lumps, they will soon thaw out and leave you a nice pliable soil, in fact better than you can get in any other way. Allow the steam to escape by raising the sash. The prevailing method is to dig below the frost for material for the hot-bed, thereby getting poor wet soil, which bakes so hard that it is impossible to remove plants without the destruction of the roots. Always add sand enough to keep the soil open.

When your soil is warm rake it smooth, leaving it four inches deep. Place on the inclined sash, which should be made very sloping, in order to run off the water easily and prevent dripping inside. You will probably have more soil than wanted, which it would be well to sift over the entire surface of the bed half an inch deep. Pass a straight piece of board over the surface, drawing it level, leaving the surface uniform and smooth.

To form the drills, which should be three inches apart, take a lath or some such piece of wood the length of your bed inside; sharpen a little by taking off the corners. Press the narrow edge into the

soil according as you want the drills for the size of the seed; if fine, just mark; for larger ones make the indentation deeper; this has the advantage of leaving a nice even bottom, so that none of the seeds are lost. After sowing the seed, again take the sieve and sift lightly over the grooves, and with a trowel fill them level by passing it crossways over them. In sowing, attention should be given to those seeds that will germinate in the same time, such as Phlox Drummondii, Zinnias, Asters, &c. Succulents, such as Portulacaeas, Mesembryanthemums, &c., keep to one side, or where they will be in such a position that they can get plenty of sun, and when watering as little water as possible.

Now comes the time when most bad seeds are made. The general plan is to allow the sun full force into the frame, and try to keep the soil wet by continued watering. Neglect for one hour to keep the soil damp at a time when the seeds are germinating is fatal; besides, a hard crust forms on the surface on account of the frequent watering. The plan I follow is to cover up the frame in such a way that the direct rays of the sun are not admitted. Seeds will germinate as well in the dark as in the light. As soon as they are up remove the shade, throwing a few spruce branches over as a partial shade for a few days. If steam occurs allow it to escape by raising the sash on the sheltered end in the heat of the day; if this is not attended to you will have it damp, and lose your plants. Here again you will find the advantage of placing seeds together that will germinate at the same time, as you can still keep those partially covered that have not yet come up. If you attend to these directions your seedsman will always have good seeds, and you will be made happy by success.

In transplanting into another frame before putting them outside, (which should be done in all cases,) if you have not another frame make a bottom of warm manure, box it around so that it will stand well over plants of a good size. Put soil on the top of this, deeper than directed for hot-bed; nail a few strips across so that you can cover with boards in case of frosts or cold winds, which we generally have in the month of May. This plan I prefer to planting again into a frame, as the plants are hardier and receive little check on planting out.

The other cause of failure more generally belongs to outside sowing, which I will treat in another number, with transplanting, bedding, &c. I would not advise seeds to be bought in distinct colors—you can get some mixed, ensuring greater variety at a much less expense.





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ONTARIO AGRICULTURAL COMMISSION.

The Report of the Commissioners appointed by the Governor in Council in April last "to inquire into the Agricultural resources of the Province of Ontario, the progress and condition of Agriculture therein, and matters connected therewith," is now before the public. It is divided into several parts for the sake of convenient reference, Part I. being the Report proper of the Commissioners, setting forth their doings and the results of their inquiries under the heads of Fruit Culture; Cultivation of the Grape and Native Wine Making; Forestry and Arboriculture; Insects, injurious and beneficial; Insectivorous Birds; Bee Farming; General Farming; Dairying; Horse Breeding; Poultry and Eggs; Salt in connection with Agriculture; Gypsum; Bone Dust and Phosphates; Special Crops; Agricultural Education and Farm Accounts; Meteorology; Muskoka, Parry Sound and Manitoulin; Diseases of Stock, and Stock Registers; Stock Laws; and some concluding remarks on other points of interest. The remaining parts contain the evidence taken by the Commissioners upon the several subjects embraced in their report, so brought together under appropriate heads that anyone can readily find the testimony upon any given subject which he may desire to investigate.

Part III. will more immediately interest the readers of the CANADIAN HORTICULTURIST, in which will be found the evidence relating to Fruit Growing and Forestry; Grape Growing and Wine Making; Insects and Insectivorous Birds; and Bee Farming. In obtaining the evidence relative to fruit growing, the Commissioners have endeavored to procure the evidence of planters resident in all parts of the Province, and by recording the name of the person giving testimony, his place of residence and section of the country with the fruits of which he is familiar, every reader will be able to form an intelligent opinion with regard to the fruits he may hope to be able to grow successfully where he resides.

It will be quite easy to follow the grouping adopted by the Commissioners in their Report, and ascertain with considerable minuteness what varieties are found to be adapted to the Niagara district; to the Counties of Norfolk and Elgin; of Kent, Essex and Lambton; of the Huron district; of the Owen Sound district; of the Counties of Perth, Middlesex and Oxford; of the Brant district; of the Toronto district; of Durham and Northumberland; of the Bay of Quinte district; of Dundas, Stormont and Glengarry; of Renfrew; of the Lindsay, Ottawa and Muskoka districts; and of the Manitoulin Islands. This will be found to be sufficiently minute for all practical purposes, and to give the present state of information upon subjects of great interest to everyone desirous of cultivating fruits.

All praise is due to the Honorable the Commissioner of Agriculture of this Province, for the labor and thought he has bestowed upon this matter, in asking for such a Commission, and carrying it out to a successful issue. The information here brought together is worth to the agriculturists and fruit growers of Ontario, if they will only make use of it, many times its cost to the Province; and there will ever remain the debt of gratitude to the Commissioners who have so faithfully performed the task assigned to them, and laid before the country as the results of their labors a report of which both they and we as a people may justly feel proud.

THE BRIGHTON GRAPE.

It seems that this variety does well at Trenton, County of Hastings. Dr. Henry W. Day, of that place, writes: "I have now in my garden a Brighton grape vine planted in 1877. It is an excellent grower, and has wintered well by having ordinary winter protection. The fruit is of excellent quality, and the vine is an early and abundant bearer. I think the vine is one that should be cultivated in this section, as it appears quite hardy enough, and the fruit ripens early and well."

DISTRIBUTION FOR 1882.—One of our friends, a lady, suggests that one of the articles for distribution in 1882 should be a rose. A member says, "I am very much pleased to see the Directors giving members the privilege of selecting a certain plant from a given number, it is sure to give satisfaction."

AN ABRIDGED FOUR HUNDRED YEARS HISTORY OF THE
STRAWBERRY.

BY CHARLES ARNOLD, PARIS, ONT.

Shakspeare informs us that the Bishop of Ely's garden in Holborn was distinguished for the excellent strawberries it produced, even as far back as the reign of Richard the Third (1483). And judging from the remarks of an old writer in 1578, it would appear that the only strawberries known at that time were the Wood strawberry and perhaps the White Alpine. He says, "Strawberries grow in shadowy woods and deep trenches, and banks by highway sides. They be also much planted in gardens. The fruit is green at first, but red when it is ripe. Sometimes also you shall find them verry white when they be ripe; in taste and *savour* very pleasant." Another old writer in 1597 speaks of the "Red and White Wood and the Green Fruited; the two last not to be found save only in gardens." Johnson, in his edition of the work containing the last statement, published in 1633, does not mention any other variety. Another writer in 1656 mentions the Virginia Scarlet (or Canada) and the Bohemian. This last variety is supposed to be the Hautbois, and he says, "this variety hath been with us but of late days, and is the goodliest and the greatest."

It would seem that up to this time no attempt had been made to grow new varieties from seed or from crossing the different kinds. And no mention is made up to this period, so far as I have been able to read, of strawberries being imperfect in their flowers, except when attempts were made to grow them under glass. Then some gardeners used to complain bitterly of their strawberries "running blind," as they called it.

The first improvement made by growing strawberries from seed was about the year 1660, a variety called at first the Clapperon, and grown by a person by the name of Fressant, a Frenchman. This variety was obtained from the seed of the Wood strawberry.

But little attention seems to have been paid to growing improved varieties by hybridizing until the time of Andrew Knight, about the beginning of the present century. In order to show what confused ideas occupied some men's minds with regard to strawberry blossoms, and to show also what progress has been made the last forty years in

growing new varieties with perfect flowers from hybridized seed, I will give a quotation from the English Gardeners' Chronicle of 1843. The writer says: "We have observed in almost every variety of strawberry that we have seen in cultivation, that some of its plants occur occasionally bearing all male blossoms, and others none but female blossoms." "*By far the greater number of plants in each variety have separate male and female flowers on the same plant.*" I will simply remark, with regard to the last quotation, that no such imperfect flowering strawberries have ever been grown by any Canadian in my time, and I question very much if any person has ever seen in America perfect female and male flowers growing separately on the same plant. But it may be just as well to remark that very few if any strawberries of English origin have ever proved perfect or satisfactory in their flowers in this country, and not until 1834, when Hovey, of Boston, Mass., introduced his seedling, was any real progress made in growing strawberry seedlings in America. Even this was a pistillate variety, and was very apt to be barren, or bear very imperfect fruit, unless some staminate variety was grown near by. But with a portion of the bed being planted with our wild strawberries, Hovey's Seedling would produce a very fine crop of large and delicious fruit.

The great improvement of the Hovey over all others of its day caused many intelligent persons to grow seedling strawberries, with a view to getting hermaphrodite varieties, (that is strawberries bearing flowers with stamens and pistils in each flower, instead of in separate flowers,) and thus prevent barrenness. It will no doubt sound strange to many readers of the HORTICULTURIST to be told that in this year, 1881, there are such things in Canada as barren strawberry beds; and yet that there are a great many of these barren beds in every county in Ontario I have no doubt. The only cause of this barrenness that I know of is the imperfection of the flowers, *i.e.* purely staminate or purely pistillate flowers.

In every old strawberry bed there will be sure to be a number of seedlings spring up, and it often happens that many of these plants bear such imperfect flowers as never to bear fruit of any kind; yet they are very prolific in runners, and these runners are frequently the largest and healthiest plants in the bed. Now it will easily be seen that to plant a new bed from runners grown in such a bed as this will be at the risk of having a barren strawberry bed. Although such

plants from an old bed can frequently be got from some kind neighbor for nothing, they may in the end prove very expensive plants, and the persons using them will be very apt to amuse themselves practicing false economy.

To attempt to enumerate all the varieties of strawberries that have been originated, named and thought worthy of cultivation in Europe and America since the introduction of Hovey's Seedling, to say nothing of the tens of thousands that have been raised and rejected after a year or two as unworthy of even a name, would fill a whole number of the HORTICULTURIST. Downing alone, in his late edition of "Fruit and Fruit Trees of America," describes some four hundred varieties. As the names of all the leading varieties in cultivation at the present day can be found in most nurserymen's catalogues, I will not name them, but will merely remark that strawberries, like many other of our best cultivated fruits, seem to arrive at a certain degree of perfection, health, vigor and productiveness, and then to degenerate to such a degree as to become comparatively worthless in a few years; therefore a constant renewing by cross-bred seedlings seems necessary to keep up the health, vigor and fruitfulness of the species.

The progress that has been made in flavor and productiveness the last three hundred years is very difficult to ascertain, but the difference in the size of the fruit and value of the seed is very remarkable. In 1593 Thomas Hyll writes: "Strawberries be much eaten at all men's tables in the summer with wine and sugar, and they will grow in gardens until the bigness of a mulberry." The English mulberry is about three-quarters of an inch in diameter, and some of our newest and best varieties of strawberries will grow from one inch and a half to two inches and a half in diameter. There can be no doubt therefore that we have made great improvement in the *size* of the fruit in three hundred years.

But if, as an old writer says in 1578, strawberries were "in savour (or fragrance) very pleasant," and we should judge alone from the fragrance of that very popular variety of late years, the Wilson's Albany, most persons would incline to the belief that we had retrograded on this point. We are thankful, however, that many of the newer varieties have a delicious fragrance as well as taste.

In regard to seed, the Alpine strawberry is said to have been introduced into France and England about the year 1764, and Mr.

Duchesne, writing in 1766, says: "The King of England was understood to have received the first seed from Turin." "It was such a rarity that a pinch of the seed sold for a guinea."

CRANBERRY PIPPIN.

A member asks, "What kind of an apple is the Cranberry Pippin; give a general description of it." The following is the description given by Downing, the best authority we have. "Fruit medium, roundish oblate, regular; skin very smooth, light yellow, with a bright scarlet cheek; flesh white, moderately juicy, brisk subacid. It is only second rate in point of flavor, but it is an excellent cooking and market apple. Good from November to February."

Your Editor grew this variety some years ago, but he found the young trees to suffer severely from our winter frosts. J. J. Thomas, the horticultural editor of the *Country Gentlemen* says the quality is poor.

JAPANESE SQUASH.

A new squash has recently been introduced into this country from Japan. It is a very distinct variety in every particular, and has thus far proved a valuable acquisition to our list. It is of the turban class, and grows of moderate uniform size; stem very long and thin, woody and angular, set in a rather deep, circular depression; surface deeply ribbed; skin warted in its early stages; color dull orange green when fully ripe. The flesh is of the deepest orange hue, and flavor most exquisite, dry, sweet, fine grained, and has positively no fibre, a quality not found in any other variety. Another peculiarity of this valuable variety is its thick solid flesh, leaving very little room for pulp, and having very few seeds, which are small and not so white and plump as the Hubbard. It is also a late keeper, though not so late as the latter, not having such a hard and shell-like skin. For pies it cannot be surpassed.—*Michigan Farmer*.

AN ORCHARD may not do well for various reasons. Sometimes the land needs draining, and the putting down of a few rows of tile will be all that is necessary. The soil may be either originally poor, or made so by excessive cropping, and the trees are suffering from partial starvation. If the orchard is in sod—and such orchards frequently are—spread a heavy coat of manure upon the surface, or spread ashes or lime upon the soil. Try this treatment and note the result.

THE PANSY.

BY REV. VINCENT CLEMENTI, PETERBOROUGH.

Permit me to make one or two additions to the interesting paper by Mrs James Davidson on the Pansy, comprised in your last number.

I have always found that *pip*ing is a very satisfactory method of propagating pansies, where the blossoms are really fine. This operation should be performed yearly, in the month of August, and the pipings should be planted, as Mrs. Davidson suggests, in a bed exposed to the north, and protected by a pot, or a box with a sliding glass top. This latter may be made any convenient size, and I have found it very useful for protecting a variety of plants, especially the choicer and tender vegetable plants, when first removed from the hot-bed. After the pipings have taken root they may be potted. The pansy, however, ought to be able to stand any amount of cold, as it is, I believe, a native of Siberia.

Another suggestion I would offer, is not to plant pansies in the same place, even for two consecutive years; they like constant change. Perfect drainage, especially if the soil be not percolating, is essential to their health, as the chief disease they suffer from is rottenness or decay in the roots.

I have never seen pansy blossoms in Canada anything like as large as those that are found in English gardens,—why, I cannot tell. I recollect, however, that a friend of mine, who was a great pansy fancier, usually rejected all but about a dozen plants from his bed of seedlings some yards square, after the appearance of the blossoms. He used to say that the pansy had as many “points” as a horse.

THE CULTURE OF HOUSE PLANTS.

BY N. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA, ONT.

Almost daily I receive letters enquiring about treatment of plants, and having visited many of the complaining parties, I find that the troubles arise from various causes, for the prevention and treatment of which I will endeavor to explain with as much simplicity as possible.

The prevailing practice seems to be potting with old worn-out soil from the garden, with little nourishment, hard, stiff and full of insect life. Others use black muck from a swamp, or surface soil from the

woods; these two are light without substance, and generally poor. Portions of them might be useful mixed with other soils if done by an experienced hand. I am aware that it is very difficult in cities to procure suitable soil, but some trouble must be experienced if you expect to be successful. Then instead of going to the woods or swamp, go to some old pasture, or place where you can find a nice pliable loam. Procure this soil some months before you require to use it, mixing with half rotted manure and one-fourth clear warm sand (avoid cold, stoney sand), and put it away in some corner or cask. Turn it over a few times before using, and mix it as well as possible. Never use stiff clay soil. Make your compost so that it will not bind in the pots, and let the soil be clean and free from coal ashes and such like.

No difficulty need be experienced in the country with respect to soil. Take a load or two of turf two inches deep from some old pasture, in the corner where cattle lay down at night, and pile it up, adding between the layers of turf as much rotten manure. This should be done twelve months or more before wanted. As much can be made at one time as will serve for a number of years. After lying for four or five months, slice the heap downwards as thin as possible with a spade, and gather compactly into the heap again, exposing as little of the turfy substance as possible. Add sand to this as before directed, so as to make the soil nice and free to handle. Never put the heap where leaves will drop upon it. There is also danger of the soil being too light, in which case the plants will grow, but the flowers will be few, small and of little show. Soil, then, is one great point of success, and if you have good soil other difficulties will be easier to overcome, and will well repay your extra trouble.

Potting is another thing of great importance, and should be attended to with great care. I will describe the mode of potting so simply that no one can make a mistake. Wash the pots if they have been in use before, no matter how clean they may look, as insect life may be lurking about that will soon find out your plants when they are taken into the house. By doing this you may save yourself much trouble. After washing the pots let them dry, and then place a piece of broken pot to well cover the hole in the bottom. Now break a lot of pieces of old pot as small as ten cent pieces; into a five inch pot put one and a half inches of these; more in larger ones. Over this place some fibre or moss, to prevent earth getting in through the drainage. Have the

soil moist, neither dry nor wet. If the soil is very dry and the plant roots very plentiful you would have difficulty in wetting some of them; if wet, then the packing will make it close and hard. Now put soil enough in the pot to bring the plant in a proper position when filled; pack the soil as you fill, knocking the pot on the bottom, so that you shake the soil perfectly among the roots. As winter is the time house plants are most looked to, if the plants have been where worms can get at them, be sure that you take them all out, or your drainage will be stopped, the soil soured by stagnant water, and the plant become unhealthy. The health of the roots is the first and most important point. Without healthy roots you may never expect healthy tops. Plants are frequently destroyed through the summer months. Some are plunged out into beds in the spring and recklessly torn up in the fall; as the feeding roots are either through the bottom or over the top of the pot, it is impossible to save them. Others are kept on a stand basking in the sun, so that the strictest attention cannot keep them from being dried up and ruined. Many are potted in this way with the appearance of good roots when they are already dead and dried up. The best plan for winter plants is to stand them in some cool sheltered corner, away from the direct rays of the sun, during the summer, giving little or no water, but just sufficient to keep them from flagging. Do not set them under trees or other places from which water may drip upon them.

Potting should be done early in September, shaking away as much of the old ball as you can without breaking the roots, and repotting with fresh soil. Beware of over-potting; many plants suffer more from this cause than any other. Give room to allow fresh soil around them if the ball is well matted with roots, if not reduce the size of your pot. It does no harm to knock the plant out on your hand and examine the roots. If you see at any time the appearance of worms, look round the ball or under the crocks and you will be sure to find them. When you have finished potting, stand the plants back in some warm shady corner, and keep from the sun for ten days. Give a good watering by thoroughly wetting the ball, and then give no more than will keep them from fading until you see them starting into growing order. Before putting them in the house be sure that they are free from insects. Lay the leaves flat upon your hand, and wash with a soft brush or sponge and warm water, especially the underside

of the leaves and stems, taking care not to break the foliage. This is sure to keep them from insects for a considerable time, which are so hard to overcome in the house.

"How often should I water my plants?" Not until they are dry, which can be ascertained by seeing if the top of the pots look dry; or if you will weigh them in your hand, you will find by practice whether they are wet or not by the weight. Too much water is the greatest cause of poor success with house plants. If a plant becomes unhealthy, drops its leaves or turns yellow in color, you have been giving too much water. But this difficulty may be easily overcome if the drainage is proper. If the plant appears as described withhold the water; do not let it fade, but give no more than will keep it from doing so until you see it fairly started into good health.

You cannot expect plants grown in the dwelling house to look as well as those in green-houses, as they do not have the same light overhead, nor the moist air and good washing with the syringe, and yet I have seen many that nearly come up to the best of green-houses. You can do much towards keeping the foliage clean by standing them in a tub occasionally, and sprinkling them with the watering-can, which not only adds much to the appearance, but also to the health and vigor of the plant. When sweeping the house, dust will gather on the leaves, and you will also find it beneficial to wash them with a sponge several times during the winter. Do not make a practice of watering your plants at stated intervals, but first ascertain whether they require it. Let the plants have plenty of room, and turn them around occasionally, so as not to have one side always to the light, and they will have an equal, bushy appearance, and not be all one-sided. Many attempt to ventilate their plants by opening a window and allowing the cold air to rush in upon them. Avoid this, unless the outside air is warm and without cold winds, as they are rendered very tender by their indoor treatment, and are very easily injured by any sudden change. If you use saucers under the flower pots, never allow water to stand in them.

The green-fly is perhaps the most troublesome insect enemy of the house plant cultivator, but they can be overcome in various ways. Take a piece of paper large enough to cover the top of the pot, cut it across to the middle, and then draw it over the pot, bringing the stem of the plant in the centre of the paper. Then commence at the

top of the plant, and brush the insects off with a soft hair brush. When done, remove the paper with the insects on and destroy them. It is always well to remove some of the old soil, and put fresh on the surface. Another plan is to procure a close box with a lid (if not tight make it so by pasting paper over the cracks). Make a hole in the side to insert a tube, and puff tobacco smoke into the box until it is full. Now stop the hole and let the plants stand for an hour or more. Then take them out and shake them well, removing the soil from the surface of the pots as before directed. This will have to be done in a warm place, (a cellar will do,) so that the smoke will not get through the house.

The red spider is not so well known; being very minute it is not easily detected until much damage is done. If you see small yellow spots on the leaves of the plants, and if they are getting dry and burnt looking, turn the underside of the leaf up and you will see small red dusty specks. Take a brush or sponge and wash with warm water, as he does not like moisture. In a greenhouse, where the place is kept moist, he never appears. Thrip and scale are not found very often on house plants, neither is mealy-bug. Cleanliness will mostly prevent all these.

It may seem to some to be a great deal of trouble to follow all these instructions, yet I find people every day that would do twice as much to see their plants prosper. Gishurst Compound, Fowler's Insecticide, hellebore powder, &c., are used with much effect for the destruction of insects, but I prefer frequent washing to any of them, as it not only destroys the insects but gives fresh life to the plants.

I shall at some future time treat of plants best adapted to house culture, and their treatment for winter flowers.

QUESTION DRAWER.

DEAD BARK.

Last spring some of my trees had dead patches of bark on them, what could be the cause? Would lack of drainage cause it?

Anything that would render the tree unhealthy would be the remote cause, and nothing will make an apple tree unhealthy more surely than insufficient drainage.

THE VICAR OF WINKFIELD PEAR.

BY JOHN M. McAINSH, MISSOURI.

As the Vicar of Winkfield pear has been widely disseminated throughout the country, and is offered for sale by our leading nursery-men, it is well that intending pear growers should be acquainted with its true character—its merits and faults. My description is given from some fifteen years experience with it. To begin with, the tree is a good healthy grower, and naturally forms a beautiful shaped tree. Although not ranking among the very hardy sorts, it is sufficiently hardy for a large part of Ontario; at least I find that it is sufficiently hardy for this section of country. It is an enormous bearer; in fact this is one of its faults, for if allowed to bear at will, every second year it will be loaded with a larger crop than the tree can bring to perfection, consequently they are of poor quality and small size. But where the fruit is properly thinned out, and good cultivation given, it will be of good size and handsome appearance.

If the quality of this pear was equal to its good growing qualities and its productiveness, it would deservedly stand in the front rank, but unfortunately this is not the case. As a dessert pear it is generally of poor quality, but occasionally is good; in this respect it is very variable. As a cooking pear or for preserving it is very good, and this I think is the only purpose for which it can be profitably grown. There is one peculiarity about this variety which it is well to know, and that is that when the trees are young and just coming into bearing the fruit is of very poor quality, but as they acquire age the quality improves. If my Vicars improve as much in the next ten years as in the last ten I will be pretty well satisfied with them. The productiveness of this variety, its preserving qualities, and the season of its ripening (Dec. and Jan.) will recommend it for cultivation in a limited degree, but those who want a pear of good quality in all respects must turn their attention to some other variety.

PRINCESS LOUISE APPLE.

We have received from Mr. Linus Woolverton samples of this apple, which was exhibited at one of the winter meetings of the Association, and very highly commended in the Report of the Committee on new fruits. In form, this apple is nearly conical, flattened somewhat at both

ends. The stem is not very stout, and projects beyond the cavity, which is deep and regular. The calix is closed, and set in a shallow, slightly wrinkled basin. The skin is smooth, free from all blemishes, and has a very bright waxy lustre, as though it had been highly polished. The color is a clean, bright carmine, on a transparent light yellow ground. The surface is moderately sprinkled with light grey dots. No description will convey any adequate idea of the extreme beauty of this fruit, which is so very striking that it would command attention in any market from its attractive appearance. But to this rare beauty of appearance it adds excellence of quality. The flesh is pure white, like that of the Snow apple, tender, juicy and nearly as melting, with a richer flavor and higher aroma; indeed, one of the most fragrant of apples. Mr. Woolverton informs us that the tree is about eight years old, is a chance seedling of the Snow apple, has borne for three years, the crop being heaviest in alternate years, and that it has established its character for uniform beauty and excellence of fruit. He considers it to possess all the good qualities of the Snow apple, besides being more beautiful and a better keeper. We fully coincide with him in the opinion that it is destined to take a leading place among our Canadian varieties, and are confident that this fruit will command attention in the English market whenever it may be produced in sufficient quantity.

How often it is that our best fruits are nature's waifs, springing by chance from some neglected hedge-row, as if to laugh at our scientific processes of cross-fertilization, and mock our boasted skill.

LETTER FROM AN OLD MEMBER.

BY W. C. SEARLE, CLINTON.

As an old subscriber I thought I would give my views on the paper, and also a few things in connection with fruit growing in this section. I am much pleased with the HORTICULTURIST, as it is the means of getting at the views of some of the fruit growers, but am sorry to see that so few take such an excellent publication. I have found that during recent years the growing of fruits, except apples, in this part of the country has not been profitable, owing to the late spring and early fall frosts, which are so injurious to grapes particularly, and the thermometer going down to 20 degrees below zero. Last season was the most favorable one we have had for some time for ripening grapes; I ripened a fine lot of the Isabella. The plum trees are fast dying out, and the crop getting less, except on young

trees coming in to bearing. The old trees are affected with the rot, black-knot, the borer, and curculio. Pear trees are somewhat affected with the blight, a good many being destroyed. The peach trees have also been badly attacked by the borer, and parties do not seem to know anything about remedying this as they do not attend to them. Some medium peaches were raised last season in Goderich township, near Lake Huron; peaches near the water seem to grow better than those further inland. Apple trees are also affected by the bark insect, codlin moth, tent caterpillar, leaf curler, and also the one that lays its eggs in a cluster, but not so bad as they have been before. Large quantities of apples have been sent from this section to the east, west and north-west. The common cherries do well, but the caterpillar and leaf slug affect them. I notice in numbers of gardens that the red and white currants are neglected, and consequently dying out, they are afflicted by the saw-fly and pith worm. What is good to destroy the green aphid on the black currant? I have tried the tree form, but the snow breaks them. The borer is busy in the maple and locust street shade trees. The raspberry bush I received last year from the Association is growing fine, as is also the Ontario apple. Last year my Burnet grape had on a peck of grapes, but most were mildewed; I used sulphur, but it was no use. The quality of the grape was not bad. I kept some till 14th February. The Flemish Beauty and Clapp's Favorite pears both fruited two seasons; the Grimes Golden Pippin apple has twice fruited; the Salem grape has fruited twice, also Downing gooseberry and Glass' Seedling plum, but I lost some of the latter before maturity. I have 12 varieties of the large English gooseberry, imported, which I am testing; those already fruited are subject to mildew. To prevent gooseberry and currant bushes breaking down with the snow I grow them in bush form, with three stakes dipped in tar, round the large bush, wired through the stakes for bushes to rest on. The small bushes I tie up with wire in the fall. I have over twenty kinds of grapes fruiting, some bunches of which weighed 12 ounces. I prune them in the fall, lay down, and cover with leaves, straw and earth. When up they are protected from the north winds by an eight foot fence. Very few varieties will live and fruit with the general culture given them here. I trim my currant bushes by cutting them down to the roots with a chisel. Many tree peddlars are no better than swindlers, in selling trees adapted only to a warmer climate, and offering rewards for the best fruit grown therefrom, when there is no chance whatever for the fruit to properly mature in a northern climate. I am testing seven kinds of raspberries. I think that the Fruit Growers' Association should go in for cheaper freights; it cost me \$1.00 to get a bushel of peaches from St. Catharines or to send a bushel of plums there. Many mistakes are made in reference to the names of different fruits, by nurserymen at different places using different names for the same kind of fruit. I noticed recently that a nurseryman giving evidence before the Agricultural Commission stated that black currants were worth \$4 per bushel. If the statement refers to country places he is wrong, because all they can generally be sold at is 5 cents per quart. I have found bees and wasps injurious to grapes, and also saw them destroying early peaches. Should fruit growers encourage

the raising of bees, or would it not be to their interest to enter on a bee crusade? Give us your opinion on the matter, Mr. Editor. I agree with one of your correspondents, who states that the Provincial in giving prizes for fruit should make some discrimination between cold and warm climates, for it is not fair that fruit grown under unfavorable circumstances in a northern latitude should be required to compete on equal terms with that grown in a southern climate. The English sparrow destroys fruit buds when the ground is covered with snow and it has no other food, the opinion of Mr. S. Hunter, of Scotland, Ont., to the contrary notwithstanding.

CORRESPONDENCE.

APPLE TREES ROOTING IN SUBSOIL,—BURNET GRAPE, &c.

I notice Mr. J. A. McKay's suggestion to put flat stones under apple trees when planting. This might prevent the roots getting into the clay for a few years, but it no doubt grows over the stones into the clay afterwards. My trees have not suffered yet from the clay soil, and I don't think it will do them any harm. The Burnet Grape has not fruited this year; I don't think it will succeed here. I planted in the same ground last year two Hartford Prolific, two Agawam, two Salem, two Beaconsfield, five Concord, nine Champion, all two year old vines, and I find this year the Agawam and one Beaconsfield dead; the other Beaconsfield has done well, and looks very like the Champion. The Salem and Concord have not fruited yet, but the Champion grew vigorously—one had twenty bunches on it, but I only allowed six to ripen, the weight of which were three ounces each. They were ripe 27th August, and seem to be best suited for this district for hardness, fruitfulness and early ripening. The Saunders Raspberry was accidentally cut when a foot high, and is not likely to succeed. I have tried several kinds of raspberries, but cannot grow them either on sandy or clay soil; the new shoot always dies away. There are plenty of wild ones growing on the sides of banks and creeks, so I suppose they require shelter. I have about 1200 Houghton Seedling Gooseberries, four years old, planted on clay loam five feet apart, and am surprised to find a good deal of the fruit mildews, although I have seen it often stated that this variety never mildews.

J. W. CUMMING, *St. Hilaire, P. Q.*

REPORT ON PLANTS RECEIVED.

The Swayzie and Ontario apples have done well, as also have the Clapp's Favorite pear and the Diadem raspberry. Saunders done rather better, but I have seen no fruit yet on any apple, pear or raspberry. The Burnet-grape vine is growing, and set a few bunches of fruit last year, but it all dropped off without ripening; if it does the same the coming season I will consider it unsuitable for this section.

ALEXANDER LAWRENCE, *Drumellie, Port Elgin P.O.*

GRAFTING IN THE TOP.

Mr. D. Bell has a farm about six miles north-west from Cobourg. Last fall he called on me offering some very fine Spitzenburg apples. I asked him how many he had. He said thirty-two barrels. I then asked him how many trees he had gathered them from. He said five. And how many did you get from the five trees last year? He said eighteen barrels. As I knew the Spitzenburg to be a poor grower, I asked him to explain. Mr. Bell said, about twenty-six years ago he planted about three and a half acres of apple trees, consisting of Golden Russet, Spitzenburg, Northern Spy, Greening, Red Canada, Talman Sweet, Baldwin, &c., &c. Twelve or fifteen years ago he cut back to about four or five feet from the ground five seedling apple trees that were growing in the garden, (they were about eight years old,) and grafted them with the Spitzenburg, hence the above result. He stated that the Spitzenburgs that were planted twenty-six years ago are nearly all dead, as are also the Baldwins, but the Spitzenburgs that were top-grafted are almost as large as the Talman Sweet that are in the Orchard, and are fine and healthy. Mr. J. W. Johnstone, Campbellford, called on me a few days ago, and I stated to him Mr. Bell's success in top-grafting. He then told me how he had succeeded with the Northern Spy. Seven years ago he cut back a seedling three or four years old and grafted the N. Spy on it. The fifth year after grafting he gathered $1\frac{1}{4}$ barrels, the sixth year $1\frac{1}{2}$ barrels, and last fall $1\frac{1}{4}$ barrels. Four years ago he top-grafted three seedlings, and last fall he gathered about half a barrel from each, showing that top-grafting is best for some varieties. Through Mr. Johnstone's recommendation, a Mr. Burgess, of Baltimore, (five miles from here) planted ten acres of seedlings last spring. When they are three or four years old he intends to top-graft all of them. If any one wishes to try top-grafting let him sow the apple seeds next spring. The following spring select such as have made a good growth and have healthy stocks, and I think they will find top-grafting to be superior to root-grafting, especially for the north.

J. D. ROBERTS, *Cobourg.*

ENLARGING THE HORTICULTURIST.

I am pleased with the HORTICULTURIST, which comes quite regularly, but I would like to see it enlarged, even although we should be obliged to pay more for it. Send me the *Hydrangea paniculata*. I would have taken the Wealthy apple, but last year I bought a number from Dr. Hoskins, which so far have done well. I will report later on, as this is the place to try them, as while I write the thermometer stands at 22 degrees below zero, and it sometimes goes to 40.

A. A. WRIGHT, *Renfrew.*

Several valuable communications are unavoidably crowded out of this issue. They will appear in the June number.

The Canadian Horticulturist.

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[No. 6.

CHAMPION, *alias* BEACONSFIELD GRAPE.

The following remarks are copied from the Report of the Fruit Growers' Association of Abbotsford, Province of Quebec, and shows in what esteem the Champion grape is held amongst them. It also proves beyond question that the Champion and Beaconsfield are one and the same grape.

"CHAMPION.—This variety was also upon the tables at Abbotsford, and on account of its special earliness attracted special attention. It was also exhibited in 1877 by L. W. Decker, of Montreal, who had bought it in 1871 from Messrs. Shanley & Gallagher. Since then it has been largely imported by them, and by Messrs. Menzies & Gallagher, as the Champion, and sold as such; and more recently imported as the Champion and sold as the Beaconsfield. It combines the main characteristics of a market fruit. It is essentially a pioneer grape. It was in flavor the poorest, with one exception, of the thirty-three varieties exhibited. It is, however, quite good enough to sell. The market does not demand quality in a grape any more than it does in a pear or in an apple. The Champion has the earliness, size and color necessary for a commercial grape, and as such, and a forerunner of finer fruits, it must prove of great service to our northern country. As a commercial grape, however, it has a weak point in its shortness of season. The Champion drops from the bunch somewhat—less so we think than the Hartford; but our knowledge on this point is limited. It is short in its season, though nothing like as short as a Peach apple; but in a general way it is like the Peach and Astrachan apples, early and perishable, yet profitable. The money aspect of this Champion grape, the proprietors of the vineyard at Beaconsfield must surely have carefully weighed, and their firm belief in it they have proved by the fact that they have planted out seventeen acres, or 12,100 vines."

THE CODLIN MOTH. (*Carpocapsa pomonella*.)

BY WM. SAUNDERS, LONDON, ONT.

The Editor has kindly sent me some correspondence lately received containing enquiries relating to this insect, from which it appears that erroneous ideas have been circulated of late by the press in reference to the habits of the codlin moth. The statements made, although somewhat contradictory, are all claimed to come from reliable men, who do not however attach their names to the communications. It is asserted, in the first place, that the female codlin moth has no wings, but crawls up the apple trees to deposit its eggs on the fruit. Second, that it has wings, and is attracted by sweets, and that hundreds of them may be readily caught by hanging jars of sweetened water at night among the branches of the apple trees. A third statement is that the larvæ, when full grown, descend to the ground and enter the earth to change to chrysalids.

It is evident that the first conclusion as to the wingless character of the females has been arrived at by the writer confounding the canker worm moth or the tussock moth with the codlin moth. In both the former species the females are wingless, but the female codlin moth is furnished with ample wings, with which she flies as actively as her male companion.

With regard to the trapping of codlin moths by means of sweet liquids, I may say that it is contrary to the experience of all entomologists. Many years ago this remedy was recommended, and I then gave it what I considered a fair test. At the time when the codlin moths were plentiful and on the wing, I hung bottles of sugar and water, others with the same sweet liquid mixed with a little Jamaica rum, and another series mixed with other flavoring materials which were supposed to be particularly attractive to insects. Hundreds of moths were captured, but the most careful examination failed to reveal the presence of a single codlin moth among them. Other entomologists have tried this remedy with similar results.

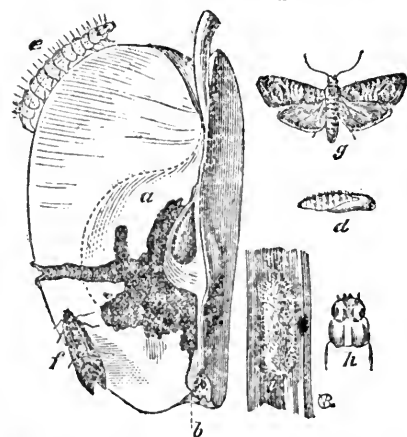
Entomologists everywhere are in the habit of trapping moths by alluring them to sweetened fluids by night. The liquor generally used is West India molasses mixed with ale, or diluted with water flavored with Jamaica rum. This is brushed on the smooth bark of trees, or on pieces of shingle tacked to them; or pieces of cloth or flannel are

saturated with the sweet liquid and fastened to the trunks of the trees. If this is done during the periods when insect life is most abundant, moths visit the baits by scores and sometimes hundreds, when by the use of a dark lantern and suitable collecting bottles, the most desirable specimens are secured. I have followed this practice myself for many years, and have thus caught thousands of moths, and have seen tens of thousands come to sip the attractive sweets, but never once saw a codlin moth among them. Many entomologists have pursued this method of collecting more enthusiastically than I have, and within the past eight or ten years some of them have published long lists of their captures, but no one to my knowledge has ever mentioned an instance where a codlin moth had been attracted by sugar. It would be well if the parties who have been so successful in this way would send specimens of their captures to some entomologist, who could determine them with certainty. In the absence of such evidence it is highly probable that some other small moths have been mistaken for codlin moths.

As to the statement of their going under ground to change to chrysalids, this is certainly erroneous, as it is contrary to universal experience. Hundreds and thousands of the worms are yearly caught hiding and changing to chrysalids under bands tied around the trunks and lower limbs of apple trees, which clearly proves that their habit is not to burrow under the earth when about to undergo this change.

In as few words as possible I will endeavor to give a sketch of the

life history of this insect, with the best known remedies for its destruction. In the accompanying figure the moth is represented at *f* with its wings closed, at *g* with its wings expanded; *e* shows the worm, *b* indicates the point where it usually enters the fruit, *c*, the chrysalis, while the elongated silky case attached to a small piece of bark is the cocoon, in which the chrysalis lies snugly encased.



Soon after the mature worm leaves the fruit in the autumn, or during the early winter in fruit

cellars, it seeks some sheltered nook in which to change to a chrysalis; if out of doors, under the loose bark of trees, or other convenient hiding place; if in the fruit cellar, it may often be found about the barrels or bins in which the fruit has been stored. Having selected a suitable spot, the larva spins a tough papery-looking cocoon firmly fastened to the place of attachment, and within this enclosure remains in the larval state until early in spring, when it changes to a brown chrysalis, which shortly produces the perfect moth.

The early brood of moths appear about the time of the opening of the apple blossoms, and the female deposits her eggs singly in the calyx or eye just as the young apple is forming. In about a week a tiny worm is hatched from the egg, which at once commences to burrow into the fruit, eating its way to the core. The occupied apple generally falls prematurely to the ground, excepting in the case of early fruit, which often approaches maturity before it falls. When the fruit drops, sometimes the worm is found in it, but more commonly it leaves the apple before this occurs, and crawls down the tree seeking a sheltered spot in which to change to a chrysalis. From these chrysalids the second brood of moths make their appearance during July, before the end of which month the eggs for the later brood of moths are usually deposited, the larvæ maturing, as already stated, late in the fall or early in the winter.

REMEDIES.—These consist of either picking the wormy apples from the trees, or gathering them up promptly as they fall to the ground and feeding them to pigs or sheep, or of entrapping the worms in bands or other contrivances. The bands used are of different materials—strips of old carpet, cloth, canvas, or cotton, or even strips of strong paper cut about six inches wide and wound around the tree and fastened with a string or tack. Within such enclosures the worms hide and transform, and by examining them once a week or ten days from the early part of June until the last of August, and once after the crop is secured, and destroying each time the larvæ and chrysalids found there, a very efficient check will be placed on their increase, and if generally practiced in any section of country, care being taken also to destroy the worms in the fallen fruit, the apple crop would shortly be wholly or comparatively free from attack. These remedies can be relied on, and may be adopted by every apple grower with comparatively little labor, and the saving of fruit will amply repay for his trouble.

IRRIGATION.

BY THOMAS BEALL, LINDSAY.

While looking over some of the Annual Reports of the Fruit Growers' Association lately, my attention was arrested by Mr. Bucke's paper on irrigation, in the Report for 1877. I had never read this paper before, and some of the statements therein surprised me not a little. The second paragraph commences thus: "The average rainfall of the last thirty-five years in Canada has been $28\frac{1}{2}$ inches per annum, and the principal part of this falls in the months of May, September and October. It will thus be seen that in the greater part of the hot growing season, when water is most required to assist vegetation, it is in a great measure wanting. This sentence contains three separate statements: first, that the average annual rain fall is $28\frac{1}{2}$ inches; second, that the *principal part* of this (the italics are mine) falls in May, September and October; and third, that during the growing season water is in a great measure wanting." By referring to the Meteorological Reports, giving the average annual rainfall for the past forty years, I find the first statement to be sufficiently correct, but the average rainfall for the months named in the second statement is 8.994 inches, or less than one-third of the annual rainfall, and for the three months referred to as "the hot growing season," June, July and August, when there is said to be but little rain, the average rainfall is 8.869 inches, or one-eighth of an inch less than during the period mentioned in the second statement, and described as the period of the principal part of the rainfall of the year.

A few lines further on the writer says: "The beneficial heat of June and July is quite thrown away, . . . because there is no water to moisten the ground." The past forty years the average rainfall for the two months mentioned was 5.98 inches, or .475 inches greater than any two consecutive months except August and September, and only .464 inches less than these. Arguments in favor of irrigation in Ontario based upon such premises can have but little weight.

On page 14 Mr. Bucke says: "One would scarcely think it necessary to show that irrigation is required in a dry, hot country with only 28 inches of rainfall, when England, with a comparative cool temperature and a rainfall of 40 inches, can double its grass crop by

an additional supply of water." Quite true, provided the statement is correct, but is it correct? From a hydrotopographical map of England, prepared by Mr. G. J. Symons, for the "Rivers Pollution Commission," I find that that portion of England having an average annual rainfall of less than 30 inches is about four-fifths of its entire extent, and embraces nearly all the agricultural area of England; and the portion marked as having *less* than 25 inches takes in nearly the whole of the eastern half. It is quite true, however, that some portions of the map show a much greater rainfall. Perhaps it might be difficult to find another spot of equal extent on mother earth's surface where the rainfall is so unequal, for while it is only from 22 to 25 inches throughout nearly all the agricultural eastern counties, it exceeds 40 inches in the west of Cornwall, and in Seathwaite, in Cumberland, 165 inches is recorded as the average yearly rainfall. But merely the small spots indicated as having a rainfall of 40 inches or over cannot be classed as agricultural districts.

If Mr. Bucke was desirous of showing the beneficial results of irrigation to agriculture in England, it would have been well for him to have named some farms where irrigation had been applied on a large scale, giving the cost of the same, so that some idea might be obtained as to its practicability in this country, for no one will deny that a more plentiful supply of water at certain times would greatly increase the crop.

I am quite aware that large sums of money have been expended in various places in England and Wales in attempts to utilize successfully the sewerage of large towns and cities on farms contiguous thereto, but I have yet to learn that many of these experiments have resulted in financial success, notwithstanding that the enormous expenses attending the delivery of the sewerage on to the farms is mainly defrayed by the great and wealthy corporations desirous of effectually disposing of the sewerage in an innocuous manner. Yet on these terms there seem to be much doubt as to its practical advantages to the farmer, for by a report lately adopted by the Mansion Home Committee and the Royal Agricultural Society, acting jointly, they say in effect that given an ordinary farm and a sewerage farm *at the same rent*, the sewerage farm will do no more than hold its own in a wet year like 1879, but in dry periods the sewerage farm has many advantages.

THE SNOW APPLE OR FAMEUSE.

R. S. Shepherd, Jr., of Montreal, writes to the *Country Gentleman* concerning this apple, as follows:—

“The Fameuse is by far the most popular apple grown in this Province. In proof of this assertion the report of the Montreal Horticultural Society for 1876 contains the information that *fourteen* out of *sixteen* large orchardists on the island of Montreal, give the Fameuse as the most profitable; and of the country orchardists, *thirteen* out of *fourteen* place it first on list for profit. Although the tree is not so hardy as Duchess of Oldenburgh, Alexander, &c., yet it has no rival for first place. It is our heaviest cropper, and seems to adapt itself to various soils.

“As a dessert fruit the Fameuse brings the highest price in this market, and within the last few years it has been profitably exported to England from this port. It is the favorite apple when parties desire to send presents of fruit to friends in England. Last fall I sold all my selected Fameuse apples at \$4 per barrel to a grocer, who had received orders for private exportations of this kind. This was a high price for last season's crop, and I presume the grocer got his profit on the transaction. I merely mention this fact as an example of the high esteem we have in Canada for this most delicious apple.”

THE ROSE OF SHARON.

Not much like our ideal of the queen of flowers is this Rose of Sharon, or *Althea*. It is neither sweet-scented, graceful or particularly exquisite in color of flower, yet it asserts and proves its value very thoroughly in its own way. If not graceful, it is straight, sturdy and vigorous, demanding for itself a prominent position on the lawn, somewhat away from other shrubs, with which its pronounced individuality does not readily blend. The flowers, if somewhat coarse, are bright and cheerful, and very welcome in August, when the lawn is specially destitute of bloom. To me the most attractive althea flowers are the single ones. The purity of outline, simplicity and breadth of color of such altheas are very attractive, particularly in an entirely white variety, which is still quite rare. Altheas seldom receive intelligent pruning. One generally meets monstrosities in this genus, for the very good reason that pruning, as applied to altheas is seldom pruning, but merely trimming or clipping. Instead of removing only a few inches of young wood year by year, the pruning knife should boldly cut back into the old wood, within a foot to three feet of the ground, according to the size and age of the specimen operated on. This should be done systematically, in winter or early spring, and not in June, as in the case of early flowering shrubs, for the reason that altheas bear their flowers on the wood produced during the current year of blooming. The result of such management will simply be a bush well clothed with leaves and flowers from base to crown, instead of comparatively naked stems, with leaves and flowers chiefly on the summit.—S. PARSONS, JR., in *Country Gentleman*.

ACTION OF FROST ON PLANTS.

BY G. F. NEEDHAM, WASHINGTON.

At the January meeting of the D. C. Horticultural Society, Mr. Wm. Saunders, Superintendent of the Agricultural Grounds, had a paper (as per title) from which I give your readers some of its points:

"You cannot tell beforehand what plants or trees are hardy. The wood of the orange is in appearance as hard as the oak. Nor will trees, etc., brought from corresponding degrees of latitude grow equally as well in another country that has a similar temperature. Australian plants which will endure cold of 15° below zero in their native habitat are destroyed here when the thermometer reaches the freezing point. The arid climate of Australia thoroughly ripens the wood, which is thus rendered capable of enduring the severe cold.

"The temperature and physical condition of the soil have also an important controlling influence on the cold-resisting power of plants. Unless a proper degree of moisture is furnished by the roots the more succulent branches will become dry and shriveled under the influence of cold, dry currents of air, although the thermometer be above the freezing point; and when the temperature of the soil is low the activity of the roots is correspondingly decreased, and they are unable to replace the losses caused by evaporation from the external surfaces of the branches and stems of the plant.

"Seeing that the temperature of the soil in which plants are growing has so potent an influence on their cold-resisting powers, we realize the value of the application of leaves, strawy manures and similar materials over the roots of plants during winter.

"From what has been stated it is evident that so far as concerns soil and culture, the greatest safeguard against injury to plants from cold is that of having properly ripened or matured growths. How much of the disappointment in fruit culture is the result of immatured growths it would be difficult to determine. I have long considered this to be the cause of the disease known as "yellows" in the peach tree. This disease is most prevalent in localities where growth is prolonged until it is suddenly arrested by a killing frost; and I am not aware of its existence in climates where the tree becomes deciduous in the absence of frost. It is within the province of the cultivator to assist nature in the requisites for perfect maturation of growth. The

fruit grower will be careful to avoid setting his trees in wet soil, or in low, rich lands. He will also prudently abstain from the application of stimulating manures, which would have a tendency to encourage late growth in autumn; he will abstain from all cultural operations on the soil when growth should be checked rather than encouraged, and use every available means to secure an early cessation of wood growth.

"When a fundamental principle is once determined and fairly understood, operative details based upon this knowledge are readily deduced and applied. As an example, I may allude to the well known fact that many of our beautiful evergreen trees from the northwestern and California coasts, as also various Asiatic conifers, have a great tendency to commence a second active growth during the moist, genial weather, which frequently occurs here during the early fall months. This growth never ripens, and in consequence is destroyed by the first frost, greatly to the injury of the plant. The mammoth tree of California and the Japan cedar may be cited as typical trees of this class. These fall growths may be checked by pruning the roots of the trees during September, which will insure matured wood; the young branches will become solid and firm, instead of being unripe and filled with watery fluid, and are thus prepared to stand the winter.

"Then, again, as to protection and the best means of preserving plants from injury by freezing, we are guided by the knowledge of the action of the frost on vegetation. Evaporation of the sap being the result of exposure to currents of frosty air, our efforts at protection will be in a direction to antagonize this result. Practically, taking such plants as roses, grape vines and raspberries as examples, the best method is to lay them on the surface of the ground and cover them with an inch thickness of sand or soil, or indeed any material that will protect them from direct contact with the air and the rays of the sun.

"With regard to the general subject of protecting the plants, some persons contend that a fruit tree or plant to be valuable or fitted for general culture must be able to take care of itself. This should be looked upon as a lame excuse for indolence and neglect. It is the province of man to assist nature in producing such results as he finds most desirable for his purposes; and if he removes plants from their natural conditions and then abandons them, so to speak, he must expect to realize the usual consequences of neglect.

FRUIT GROWING AT TEMPLETON, PROVINCE OF QUEBEC.

BY HUGH H. McLATCHIE.

The Burnet vine did not thrive well with me, and on examination I found the roots were covered with the phylloxera; this is the first I have seen of the pest here. Some vines which were started from cuttings of the Burnet are doing well, but have not yet borne. The Janesville grape is of poor quality, but better I think than Champion. They ripen with me the first week in September.

I have examined the different kinds of apple trees by cutting the ends from the branches of last years growth. Those that are frost proof are green and fresh to the very ends, and the pith light colored. In this class, the Duchess stands at the head of the list, then the Montreal Peach, Irish Peach, Brunswicker and Tetofsky. The latter was injured in the spring of 1875 by the sun scalding the bark.

A second class, headed with the Alexander, followed by White Astrachan, Pewaukee, Fameuse, Red Astrachan, and Walbridge. In these the pith turns brown, and the wood turns white and soft, and the sap oozes out from wounds made by pruning or other cause and turns the bark black.

Out of a dozen or two varieties of winter apples tried, the English Russet makes the best attempt at wintering of all I have tried.

Among the crabs, the Transcendent, Red and Yellow Siberian, Montreal Beauty, Marengo, Chicago, Lady Elgin and Winter Gem are quite hardy. Elliott's Beauty, Dartmouth, Hislop, and the newer sorts, Lake Winter, Whitney's No. 20, Brier's Sweet, and Van Wyck's Sweet grow well, but have not the fresh, healthy look that the Siberians have. Some of these I have had but a short time and never seen fruited.

In closely observing the causes of failure and their prevention, perhaps the soil may be one of the greatest obstacles to fruit growing here. I have noticed that rich manuring and strong growth are sure failures, and that young seedlings left unpruned will stand well, but the same grafted and growing strong will freeze to the ground. After trees begin to bear they do not grow so rank and soft, but stand the cold better.

Windbreaks may be useful, but if close and dense enough to stop the circulation of air, they would be bad for late and early frosts;

and the sun, by starting the sap early, might be injurious. Perhaps a forest or a mountain at a distance would be the best protection. Evergreens planted singly or in groups all through the orchard might do good. Some years ago I saw in some paper a novel idea. Instead of belts around the orchard, the writer planted them in this way among his trees. He claimed that they stored up heat during the day, and drew heat from the soil. Now it may be possible to change or effect the climate greatly by the destruction of large forests, but how a few spruce trees would keep an orchard warm is not so plain; but the shade may have caused the results which he accounted to storage. Every one who has had house or garden plants frozen knows the effect of a hot sun on them. If two plants are equally frozen, and one of them be left in the sun, while the other is placed in the shade and well watered, the former will be found to be ruined, while the latter will be but little injured. A friend of mine planted half a dozen trees of the Fameuse, and they all failed but one. That tree was planted near the west end of the house, and partly shaded with trees; the sun's rays do not reach it till near noon. He has never pruned it, so that it is a mass of brush, but is beginning to bear. It is the only Fameuse that I have seen here that looked like living.

Another thing that has a good effect is summer pruning, and topping back all the young shoots late in summer, and if they sprout nip them off again, but this plan would only do for the amateur.

PEAR BLIGHT AND PLUM CURCULIO.

A correspondent of the *Country Gentleman* asks:—

“Is there a blight proof pear tree, and a plum that the curculio will not sting? I have a thrifty apricot tree that blossoms, but bears nothing.”

To which Mr. J. J. Thomas replies,

“There is no pear that is absolutely blight-proof, although a few varieties are nearly so and are rarely attacked by the disease. Of these, Duchess d'Angouleme stands at the head; then Winter Niels, Seckie, Clairgeau and Beurre d'Anjou. The new Kieffer's Hybrid is thought by some to be perfectly blight-proof, and it is doubtless nearly so; but we have seen it slightly affected. There is no plum proof against the curculio, but these insects are easily destroyed if the work is properly performed. The loss of your apricots is doubtless from the sting of this insect, which you may easily determine by examining for the small crescent marks in the young fruit when as large as peas. The jarring process will save them if vigorously applied, which very few persons have the industry to do.”

THE FRUIT CANNING BUSINESS.

Mr. J. J. Thomas, horticultural Editor of the *Country Gentleman*, says in that paper:—

“We visited the canning establishment of the Niagara Preserving Company, and obtained from F. Gebbie, one of the proprietors who gives constant and efficient attention to the work, the following figures showing the quantity of some of the fruits and vegetables canned the last and present season. About two million cans are required for one year's work. In 1879 30,000 cases (two dozen per case) of tomatoes were canned, 15,000 cases of green corn, 7,000 of beans, and 7,000 bushels of apples. The present season 2,500 cases of cherries have been canned, 2,800 of Blackberries, 130,000 quarts of strawberries, and 1,000 bushels of plums. The work requires 400 hands. Several machines were in operation for removing the corn from the cob at the rate of one a second, or a bushel in a minute and a half; and another machine enabled the attendants to fill 40 cans per minute. The company engages of farmers a large portion of their supplies, 350 acres of corn being raised this year and 160 acres of tomatoes. About 200 acres of tomatoes are required each year, yielding about ten tons per acre.

How many fruit canning establishments have we in Ontario that do a like business? And yet this is but one of the canning establishments of Niagara County situate at Lockport, N. Y.

PERPETUAL BLOOMING PELARGONIUMS.

Who has not wished that these lovely flowers, the Pelargoniums, could be had all the year round? If they could only be persuaded to bloom at all seasons, as do their sisters the scarlet Geraniums, what treasures they would be. They are gorgeous indeed while they last, but it is only for two or three months in the early spring, and then their beauty is gone for the year. It is therefore with great pleasure that we now chronicle the arrival of a variety of Pelargonium that blooms as freely and continuously as any scarlet Geranium.

Mr. John G. Heinl, Florist, of Terre Haute, Indiana, has introduced a new strain of Pelargoniums which bloom almost constantly the year round, and is especially fine during the winter and spring months. He says they are of easy culture, delighting in a dry atmosphere, which at once will make them one of the most suitable and charming window plants. As bedding plants, he claims, they are equal to anything in use for that purpose; if the plants are kept at rest during winter and bedded out after the frosts are gone, they will remain in constant bloom all summer, enduring without injury the hottest sun.

This *Pelargonium* originated with Mr. Fredrick Dorner, of Lafayette, Indiana, who obtained some *Pelargonium* seed from Ernest Benary of Erfurt. He noticed that one of the seedlings commenced to bloom about mid-winter, and continued to bloom for some ten months, during all which time it was never destitute of flowers. The plant grew vigorously and at one time he counted forty seven good sized trusses. It thrives remarkably well as a house plant, being very easily kept, and blooming without intermission for nine months in the year.

We regret that we are not able to give our readers a colored illustration of this *Pelargonium*, but such of them as are familiar with those known as the Spotted *Pelargoniums* will readily form some idea of its general appearance and beauty.

AUSTRALIAN COMMISSION.

BY P. E. BUCKE, OTTAWA.

It is understood a Commissioner is coming to Canada during the ensuing summer, for the purpose of enquiring into and procuring for that country any economic trees or plants found here suitable for cultivation, and worthy of a place in the field or garden of the antipodes. In turning up Pugh's almanac for 1880, page 53, it is found that they have already procured from the continent some of our native grapes. The writer of the article in question says, "It would be far better for us to turn our attention more to the cultivation of the fine varieties of the American species of vines which are not affected with blight, or only very slightly so, as the well known Isabella and others which have been introduced into the colony. The following are a few of the best kinds, and cannot be too highly recommended: Adirondac, black; Ascot, a good white grape; Carter, black; Clara, yellow; Catawba, red; Cassady, white; Clinton, black; Creveling, black; Cunningham, a good white grape; Delaware, red; Diana, red; Elizabeth, white; Scuppernong, Ontario, Norton's Virginia, Lindley, &c."

It will be noticed in the list quoted that almost all the varieties named were introduced previous to 1866, and many of them are entirely superseded in Canada by much finer varieties. In the whole list only one of Rogers' (Lindley No. 9) is mentioned. It is observable that one of Charles Arnold's grapes (Ontario) is amongst those specified.

Whoever is appointed to receive the Commissioner should see that he does not return without a full list of either plants or cuttings of our best standard varieties of this luscious fruit, which Australia is able to raise in such profusion, and with so little trouble. The semi-tropical climate of those colonies where the orange and lime, the mulberry, fig and peach, the shaddock and citron, the loquats, pineapple and banana make ones teeth water to read about, would develop quantities of such varieties as Burnet and many of the Rogers, and such grapes as Rickett's Lady Washington, as have never been dreamed of in this country.

It would be well too if some of Mr. Arnold's new varieties of strawberries could be tested in these far off regions, where, though separated by space, all fruit growers feel the kindred of brotherhood. Our climate is so much colder than that of our fellow colonists that the exchange of plants will all be on one side, but they may have some new serials or annuals that would be suitable to our hot summers, and would mature before autumn closes in. If the new conservatories were ready at the Model Farm, on receipt we might be able to see what kind of looking things in the shape of plants and flowers their wild perennials would turn out.

TWO DELICIOUS PEARS.

Fine samples of the Dr. Reeder pear, just brought in from our orchard, gives me an opportunity to taste one of the finest varieties known to cultivators. It is much to be regretted that the best fruits are usually the least known. Coarse kinds are introduced in great abundance, and are to be found everywhere, but how rarely do we see the really choice sorts. But this is easily explained. Almost invariably fine quality is secured at the expense of vigorous habit, and generally the high flavored fruits are such indifferent growers that nurserymen cannot propagate them to advantage, and usually the fruits are not sufficiently attractive in size and color to take well in the markets; hence the reason that they do not become disseminated. Dr. Reeder is no exception to the rule. It is a moderate, slender grower, either on the pear or quince, and to produce good trees it costs three times as much as it does of strong growing sorts. The fruit is only of medium size, but so juicy, melting, highly perfumed—in fact, so perfect in every respect—that no amateur should be without it. This season it ripened nearly two weeks earlier than usual. It is generally in perfection in November.

Another high flavored pear, meriting perhaps the first place on account of quality is Bonne du Puits Ansault, one of Mr. Leroy's introductions, which is destined to do him credit for all time to come. It too, is a

moderate grower, and to obtain good trees, either standard or dwarf, it must be double worked. But such a delicious fruit well repays any extra expense that may be required to secure it. Of medium size, with skin of a light russet color, and flesh white, juicy, vinous, rich—superior in my estimation to Sheldon or Seekel. It certainly possesses qualities which entitle it to be ranked among the best pears known. It ripens early in September. While neither of these varieties is suitable for extensive orchard culture, I strongly recommend them to cultivators who desire choice fruits for their own table.—W. C. BARRY, in *Country Gentleman*.

CORRESPONDENCE.

REPORT OF THE FRUIT TREES AND PLANTS RECEIVED.

Glass' Seedling plum was killed by mice last winter, but I have some splendid small trees budded from it. They appear very hardy; subsoil red clay. Diadem raspberry and No. 20 strawberry are dead. The Burnet grape gives good satisfaction so far. It had two bunches of grapes, well set in the cluster; fruit very good, no mildew, soil rocky. The Goodale pear holds its reputation as a fine grower, but it has one serious fault in bearing Beurre Clairgeau pears this year. It looks like a fraud; soil light, subsoil clay. The Ontario apple neither grows nor dies. The Saunders raspberry grows well, and takes root from the end of the cane as readily as Mammoth Cluster. I had forgotten the Grime's Golden Pippin. The tree was dead when I received it, but I had one bushel of first-class fruit from a graft I saved.

JONAS NEFF, *Port Colborne*.

NOTE.—Mr. Neff has forgotten that the Association being unable to get trees of the Goodale at that time sent the B. Clairgeau instead.

REPORT ON PLANTS RECEIVED.

I have been very neglectful in writing to you concerning the trees and plants received from the Fruit Growers' Association. I have been a member for a good many years, and have had very few losses. I have had three varieties of grapes, the Salem, Burnet and Othello. The Salem grape has done very well; it bears excellent fruit. The Burnet has not commenced bearing, but looks rather funny. The Othello is subject to mildew. Of pears I have had two varieties. Beurre Clairgeau has not done very well, but Clapp's Favorite is a healthy looking tree, but has not yet commenced bearing. The small fruits have done very well. Fruit of most every kind grows well in the County of Huron. Apples have been very abundant here the past few years. First-class apples for exportation have been selling at from 75 cts. to 90 cts. per barrel. An establishment for drying apples by evaporation is commenced in Seaforth, but the price paid is only 20 cts. per bushel for good fruit, so you will perceive that apple growing is not very remunerative in this locality.

ROBT. LANDSBOROUGH, *Clinton*.

 SENASQUA GRAPE—BURNET GRAPE.

We would have taken the Senasqua grape selected for this year's distribution, but it is considered later than the Concord in ripening, and so very liable to crack and defective generally that the original proprietor of it, Mr. Underhill, now recommends it for amateur culture only. How is it that the Association has made choice of such an inferior grape, instead of selecting from the seedlings of W. H. Mills or W. H. Reid? Several of them have been highly praised for their many good qualities in our Annual Reports. I fear that the Burnet, sent out in 1878, will not prove a success, at least my experience of it has been very unfavorable. I have found it very liable to mildew both in leaf and fruit, and too late in ripening. I received it from the Association and planted it in the spring of 1878, when it made a fine growth. In 1870 it also grew well, but the leaves mildewed badly, though I applied sulphur, &c., in a careful manner. In 1880 it bore 12 or 15 medium sized bunches, and not compact. Berries medium size, oval and sweet, and of fair quality, but with large seeds and thick tough skin. I speak of two or three of the best bunches which escaped the mildew and ripened. The others were not ripe when the frost came, which destroyed all the remainder. My Isabella's were ripe before the Burnet. I consider the Burnet, even if it were to ripen early and come to its best, very inferior in quality to the Salem, Brighton or Worden. Excuse me for writing so plainly on the above matter, having been induced to do so from the fact that I would have had more success in procuring subscribers if I could have offered them a grape that I could have recommended.

F. K. GORDON.

 REPORT ON EUMELAN GRAPE, &c.

All the plants I ever got from the Association grew except a peach, and the only one that did not stand the climate was the Early Wilson blackberry. The Eumelan was very prolific until this year, when it blighted or rusted badly. Some of the other vines blighted some, but that brought no fruit to perfection. The vines that did best with me this year were the Concord and Delaware. The Isabella did not rust much, but the fruit did not ripen properly. The Salem is the strongest growing vine, and Martha the weakest. The Clapp's Favorite pear was best patronized by the young people, and Beurre d'Anjou about the handsomest late pear. Both are hardy with us, so are the Clairgeau, Easter Beurre and Oswego Beurre. We have found Gracie's Golden Pippin hardy, healthy, compact growing and long keeping, but no more exempt from the codling moth than other apples.

DAVID NISBET, *Mandaumin*.

ENQUIRIES ABOUT WINE MAKING.—I made wine last fall from mixed grapes, including Rogers' No. 3, 4, 15, Salem, Delaware, and Hartford Prolific. The wine is good flavored, but is not as clear as I would like it. Can you tell me how to make it clearer?—JAMES HINCHLIFF, *Hamilton*.

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[No. 7.

THE WISTARIA.

This is one of the beautiful twining shrubs which has been brought out of nature's wilds, and which, planted in our gardens and about our dwellings, has taken kindly to its new surroundings. It is found both in Asia and America, in temperate latitudes. The American species, *Wistaria frutescens*, is found in moist soils in the Virginias, Carolinas and Southern Illinois. The Asiatic is found in China and Japan, and is known as the *Wistaria Sinensis*. The American species blooms from July to September; the flowers are pea-shape, borne in terminal racemes, of a bluish-purple color, and pleasantly scented. The Asiatic was brought from China to England in 1816, and from England to America. It climbs very rapidly, and will soon cover a very large space. Mr. Fortune mentions a famous patriarch which he saw in Japan. The trunk measured seven feet in circumference at three feet from the ground, and the branches covered a trellis sixty by a hundred feet. Many thousands of its long racemes of purplish flowers were hanging in graceful profusion from its branches, giving to the plant a most brilliant appearance. One of the racemes which he measured was three feet and a half in length.

There is an old hemlock tree at "Cottage Place," Germantown, Philadelphia, Penn., eighty feet in height, which is covered with a couple of Chinese *Wistarias*, the stems of which are about two feet in circumference.

It grows well in some parts of Ontario, and doubtless will in all parts where the peach can be successfully cultivated. There is a fine specimen that adorns the verandah in front of the residence of one of the members of the Fruit Growers' Association in St. Catharines, Mr. James Taylor's, which is a most beautiful object when laden with bloom. How far to the northward its successful cultivation can be carried will only be ascertained by actual trial. We look with interest

to the planting that is now going on in the experimental grounds of the Ontario School of Agriculture at Guelph, expecting that in a few years the reports will very materially advance our knowledge of the hardiness of many useful and ornamental trees and shrubs.

There are several varieties of these *Wistarias* now in cultivation. Of the Chinese there is a white variety, differing in no material particular from the other except that the flowers are white instead of blue. Another variety was introduced from Japan in 1863, having perfectly double flowers, deeper in color than the single, and the racemes somewhat longer. There is also a white variety of the American species, and one that is supposed to be a hybrid between the American and Chinese species, called *Wistaria Magnifica*, and another known as *W. Brachybotris*, brought from Japan, which differ from the type mainly in the shade of color of the flowers.

We are indebted to Mr. James Vick, of Rochester, N. Y., for the opportunity of presenting our readers with the colored illustration of a raceme of this beautiful flower which adorns the present number. It is a very truthful representation, and does great credit to Mr. Vick's accuracy and taste.

SOWING FLOWER SEEDS OUTSIDE, AND BEDDING OUT.

BY N. ROBERTSON, GOVERNMENT GROUNDS, OTTAWA.

Sowing outside should never be done sooner than the middle of May, and not then unless the weather is warm and vegetation going on rapidly. If you sow when cold weather prevails many of your seeds will rot and perish. A very large proportion of the flower seeds sown outside are never seen, and the general cry here raised is "bad seeds." The principle of success in this is much the same as in the hot-bed, but with this difference: The seeds are thrown carelessly in the ground, and nature is expected to do the remaining portion of the work, but she will not unless you adhere to her rules. A large portion of flower seeds are so fine that unless care is taken in the sowing of them the attempt will be in vain. The general practice with amateurs is to scrape away a little of the surface and sow the seed, and draw the soil back and leave it there. Often the soil is rough and hard below, and it is almost the same as if the seeds were thrown on a road

and covered over. Even these seeds would germinate if continued moisture is afforded them, but the roots being unable to penetrate the hard bottom soon die. Then see that the soil is loose below and rich enough, but remember that a very rich soil is not advantageous to have a good show of flowers, often the reverse; it will give you plenty of foliage but few flowers. Draw a portion of the soil away where you intend sowing, regulating the depth according to the size of the seed. For small seed use a sieve to get a little fine soil on which to sow the seed; sow and cover with the sieve. Many small seeds are lost through insufficient covering as well as being too deep. Large seeds, such as sweet pear, lupins, &c., do not require this care, as they will vegetate under most unfavorable circumstances provided moisture enough is retained.

After sowing the seed the soil should be kept moist. If the ground is dry it would be better to wait for a shower of rain, and then do not let the soil dry up until the seeds are well up over the ground. Shade the land or you will be unable to do it properly. Avoid watering if you can, (as this makes the surface hard and crusty and more susceptible to drying up), if a fair moisture can be retained without it, but without shade it is impossible to succeed during our bright sunshiny days, for if allowed to become dry at a certain stage your seed is lost forever. Shading may be done by a bit of board raised on one side so as not to press on the soil, but some open substance such as spruce branches is better, as with anything close you will have to remove it when rain falls.

Bedding in its proper sense is scarcely a subject fit for amateurs to try unless they have the convenience of a hothouse, as it requires several thousand plants to fill a small bed, costing more than most persons would care to expend. I saw an article in one of our Canadian newspapers sometime ago recommending amateurs to try and imitate one of the most intricate beds done by the most expert gardeners at the Crystal Palace, and then said by many who saw it to be not very satisfactory. This bed took some fourteen thousand plants to fill it, and a small bed will take several thousand to carry out a simple design. To the amateur beginner I will give a bed filled in with plants that will not cost more than one dollar for seed, and few beds will be more attractive, and it will be sure to elicit much admiration from those who see it. I would suggest a circular bed of ten feet diameter,

(beds without corners are easiest.) Divide this into quarters by running a line both ways across the centre. Fill each quarter alternately with red and white phlox drummondii, that is two of white and two of red, this with a border of Tagetes (yellow) will make a handsome bed, and the plants are of the easiest raised. In planting out save a few plants of each color, and when the plants in the bed begin to flower, if any appear of a different color from what they are intended, remove them carefully and replace them with some of the reserve. The best way in which to do this is to take out the wrong plants in the bed, and dig a hole to receive the new ones, disturbing the roots as little as possible, and showing no trace of the exchange. If you plant close you may be able to remove a few plants and spread the others over the space.

Another plan for a bed is to plant in what may be termed ribbon fashion. Plant around the bed in bands of not less than eighteen inches, and in the space between you may fill up with any colors that will form a good contrast. You may use a white as often as you like, having a dark between, or a red, having a light between. Put a border around the outside of some stiff, erect growing plant, such as dwarf blue ageratum, which you can always trim a little on the outer edge to keep it from falling over the walk or grass. It is well to have the lines or masses as large as possible, as when they are small and narrow they run together and lose effect. When the plants grow, peg them down, covering all the naked portions of the bed, and draw them into the form you want. Pegging down has another advantage, as it causes the plants to throw out laterals, and gives you a more solid mass of flowers, and should not be neglected.

A border that is straight gives a fine chance to show a ribbon, and may be done by the same plants in the same manner as described for ribbon bed. This kind of work can be carried out with other plants, but the phlox drummondii is the best of all annuals for this purpose, is easy to grow, gives flowers for nearly three months, is almost a solid mass of color, and rarely disappoints the grower. If anyone wants a plan for a more intricate bed, I shall be most happy to give it through the CANADIAN HORTICULTURIST.

NOTE.—We hope that our readers will avail themselves of Mr. Robertson's knowledge and experience in flower culture, and learn intelligently to beautify their homes with these cheerful gems of nature.

THE GRIMES' GOLDEN PIPPIN.

The Grimes' Golden is a western apple, and originated in Brooke Co., West Virginia. By whom the seed was sown it is not positively known, but believed to be a Mr. Crawford. This seedling was among the first apple trees produced by an American in the Ohio valley. As such, without taking into consideration the superior quality of fruit, it is worthy to become a matter of history. The many good qualities of both tree and fruit constitute it doubly so. This extraordinary apple has few equals in the catalogue of American fruit; it certainly has no superior. Taking into consideration the hardiness and long life of the tree, its habit of constant bearing, the superior quality of the fruit, together with the great length of time it is in season, the Grimes' Golden stands preeminent.

The original tree, now over ninety years old, is in the orchard of Dr. Joshua Gist, formerly owned by Thomas P. Grime, situate two miles east of the Ohio river. This orchard of seedling trees was set out by Edward Crawford about the year 1790, and by him sold to Thomas Grimes, Sr., in 1799, at which time this noted tree bore its first crop of apples. It is said it has not failed to produce fruit every year since that time. It is a choice apple for the southern market, where it is well known. As early as 1804 Mr. Grimes sold the apples from this tree to traders on the Ohio river, to be taken to New Orleans. In 1734, the year of the severe frosts from the 13th to the 18th of May, which destroyed the fruit throughout the entire region where this tree was growing, it produced a full half crop of apples. This circumstance gave additional notoriety to the tree and fruit, and scions were sought for grafting.

The writer of this, who obtained his first trees of the Grimes' Golden apple in 1838, visited the original tree June 24th, 1879, and found it in a very good state of preservation, with a fair crop of fruit evenly set over its branches. The tree is about thirty feet in height, and measures six feet around the trunk two feet from the ground. Its branches cover an area of 30 feet in diameter. Although not a very large tree, it has frequently produced between 50 and 100 bushels of fine marketable apples in a season. Soon after the original tree came into bearing the fruit was called the Grimes' apple, and sometime later on the Grimes' Pippin. After the late Samuel Wood, a noted nurseryman of Jefferson County, Ohio, commenced propagating it, he added the word golden, calling it Grimes' Golden Pippin. Although it is a legitimate member of the pippin family of apples, at the annual meeting of the Ohio Pomological Society, in 1866, the word pippin was dropped, since which it has been known as Grimes' Golden, and this name is now well established.

The tree is a strong, upright, spreading, open, rapid grower, very handsome in form, and needs little pruning; wood very hard and tough; bark dark greenish brown; foliage large, dark green and very abundant. The tree is an annual bearer, and sets its fruit evenly over the branches. The fruit is very smooth; size medium; form-oblong oblate, sometimes a little angling at the crown; color light green, with numerous minute light dots when taken from the tree, but becoming a rich golden yellow when ripe;

basin abrupt, tolerably deep, round and smooth; calyx large and open; stem long and slender; cavity deep and regular; core small and closed; seeds numerous, plump and dark brown; flesh yellow, very fine grained, breaking and juicy; flavor slightly sub-acid, aromatic, rich and sprightly; use, dessert and culinary; season October to April; quality best.

—G. F. N., *Millersburg, Ohio, in Country Gentleman.*

PLANTING NUTS AS TREE SEED.

BY B. GOTT, ARKONA.

In the February number of the CANADIAN HORTICULTURIST are some questions relative to the management of nuts as tree seeds, their preparation, protection, times of planting, &c., by one Daniel B. Hoover, Almira, Ont. In attempting an answer to these enquiries I have thought that quite possibly it might be advisable to treat this very important and primary subject with some little show of thoroughness, and simply because to our certain knowledge there are many besides our Almira friend who are deeply interested in and asking substantially the same questions relative to forest tree seeds. The simple facts of the matter appear to be that there is conspicuously growing in our people a deep and widening interest in forest tree culture from year to year, and many are now asking questions relating to it that a few years in the past would have been thought insolent and vain. Well we are rather glad to see this spirit of enquiry coming to the surface, and not alone because it is the indication of a growing intelligence among the general mass of our people, but also because it is the direct precursor of growth and development in a course that beautifies and enriches the face of our prosperous and beloved country. When every man shall become concerned for his own home, and for its beautification and advantages, will shortly appear the time when our general landscape shall be attractive, and a joy and satisfaction to our people and to the stranger in our midst.

Nuts have for a long time in the past been deeply interesting to the boys of the people, those natural scavengers of our woods and fields, as well also as to the earnest and laborious collector of natural history specimens for curiosity and study. They are at the present time constantly used as food by many people, and also by thousands of smaller dependent animals of our forests and fields, which subsist only

on their carefully garnered store of well ripened nuts through our long and tedious winters. Some grow on exceedingly high and massive trees, and others on low and grovelling bushes, but on whatsoever they may be found growing they all instinctively and naturally seek the covert the soil affords them for protection and future usefulness.

The gathering of nuts for purposes of seed should be done as early as possible after their maturity, as the least possible amount of drying by the influences of the atmosphere is only injurious to them as germs of future plants. The nut gatherer must be a close and discerning observer of nature, as in the treatment and preservation of nuts some require treatment quite different from that of others. Some must be kept studiously dry and away from all outside moisture during winter, while others must as studiously have a liberal supply. Again, some must be kept cold, and exposed to frequent freezing and thawing to subdue their obstinate coverings, while others must as carefully be kept out of the reach of frost. And still again some may be advantageously planted in their seed beds in the fall of the year, while others will not endure this treatment with impunity.

But to particularize, it will perhaps be best for our purpose to make some special statements as briefly as possible relative to the management of each kind of nut for seed purposes.

English Walnuts, *alias* Maderia Nuts, (*Juglans Regia*.) Nuts ripe early in October. Dash from the trees, gather and place in thin layers on the ground, and slightly cover with damp earth to keep moist and secure from the atmosphere during the winter. In early spring take out and plant in a seed bed six inches by two feet, kept clean and protected from the severity of the sun. These nuts will not do as well in this country as our native variety, but in favorable spots the young trees will do tolerably well, although but very few are now found growing amongst us.

Black Walnuts, (*Juglans nigra*), and Butternuts, (*Juglans cinerea*), are native forest trees of fine proportions. Nuts ripe the latter part of October or first part of November. After they are matured and loosened by the frost or shaken down by the wind, they must be gathered as soon as possible and protected from the atmosphere, and planted early the following spring. Fall planting may also be adopted, but spring is greatly preferable, as thereby solidifying of the ground and encrustation is mostly prevented.

Hickory Nuts, (*Carya alba*, and *C. amara*,) are treated much like the preceeding. The first is an exceedingly pleasant and nutritious food, and is greatly reished by both man and beast. The nuts are slow in germinating, and for a year or two make a slow and feeble growth, but with patience and care they eventually make fine trees.

Beach Nuts, (*Fagus sylvatica*,) are produced on native forest trees of noble growth. The nuts ripen in great abundance early in October, and readily fall by the influences of frost and wind. On low spreading trees they are dashed and gathered on sheets and preserved in dry sand, out of the way of frost, and sown very early in the spring in well prepared seed beds in rows one foot apart. They readily germinate, and form fine trees in a comparatively short time.

Chestnuts, (*Castanea Americana*, and *C. pumila*,) also Spanish Chestnuts, (*C. Vesca*,) and the ornamental and beautiful lawn tree, the Buckeye or Horsechestnut, (*Aesculus hippocastanum*,) are all the fruit of forest trees of deserved and growing popularity. The first three sorts are exceedingly relishable, and are much used for food. Nuts ripe in October or November, and will readily fall by the action of the wind after frost. May be gathered and kept in dry sand out of the way of frost. They readily germinate in the spring, and may be sown in rows one foot apart and six inches in the rows in a well prepared and liberally enriched bed. They may be transplanted in the nursery rows at one or two years of age, and need some protection, as they are a little tender while in their infancy.

Hazel Nuts, *alias* Filberts, (*Corylus Americana*, and *L. Avellana*,) are very popular and much esteemed for food, especially the English variety. The nuts may be gathered and stored away in dry sand out of the reach of frost, and sown as early as possible in the spring. They will thus make fine plants to be taken up early the ensuing fall. They are not much grown in this country.

Almonds, (*Amygdalus pumila* and *A. comunis*,) Peach, (*Persica vulgaris*,) Nectarines, (*P. levis*,) Apricots, (*Prunus Armeniaca*,) and Plums, (*P. Americana*,) are all related, both in nature and the treatment of their seed. The Cherry, (*Cerasus Vulgaris*,) may also be included. In the successful management of their seeds, the one essential point is studiously to prevent them from becoming thoroughly dried while exposed to atmospheric action. As soon as cleansed from their outward covering they may at once be stored away in boxes of

damp sand, and put out of the way of frost. But they must be moved at the earliest possible moment in the spring, as they readily germinate upon the slightest approach of vernal influence. In the case of *Prunus Americana*, most experienced nurserymen gather them as soon as matured, and at once commit them to the seed bed in the sure and certain hope of an early germination.

I am afraid that I am surpassing my limits in this article, but though meagerly done, I hope I have sufficiently indicated the treatment of most of the prominent nuts or hard shelled tree seeds of use in this country for purposes of germination. The subject is very interesting, and might very profitably have been treated at much greater length and consummate thoroughness, but we hope the hints dropped will in some measure at least answer the enquiries of our inquisitive horticultural friend.

BLACK WALNUT.

"Twenty three years ago Horace Everett planted twenty three acres of waste land on his farm, near Council Bluffs, with black walnuts. The trees are now from sixteen to eighteen inches through, and have been sold for \$27,000. This gives him an income of \$50.00 per acre for the use of the land."

The above is taken from one of our exchanges. It goes far to corroborate the views expressed by Mr. Thos. Beall, of Lindsay, and others, on the value of this tree, and the profit to be derived from a judicious planting of it in sections where it will thrive. Many a piece of broken land might at a small outlay be made very profitable by planting it with black walnut, chestnut or poplar, which otherwise would never yield anything to the owner.

FRUIT IN A HURRY.

This is a fast and impatient age. People want quick returns for their labor, and are not willing to wait for their gains. The impression that it will take a life-time to get fruit from a new plantation deters many from setting out trees. It certainly requires time for an orchard to come into bearing, but there is quite a variety of fruits that may be depended on to yield a speedy harvest.

The quickest return is from strawberries, and they are so easy of cultivation that it is wonderful they are not more generally grown. Set out early in spring, and well cared for, they will produce a moderate crop the

first season. They will bear in six or seven weeks from the day of setting, and if transplanted with a ball of earth adhering to the roots, will fruit nearly as well as though they had not been moved. Care should be taken to select well-rooted runners of the previous year's growth. It never pays to move old strawberry plants. The second year's yield of a new strawberry patch will be found abundant if it has been kept clear of weeds. Wilson's Albany may be depended on to give a bushel of berries to the square rod, or two quarts per day for half a month, in any year while in full bearing.

Musk melons and water melons will yield their delicious products four months after planting. They can be grown in any of the older districts of Canada, but should be started in a hot-bed. This is necessary in order to get the fruit in hot weather, when it is most welcome. But a hot-bed may be very cheaply constructed, and will be found very useful for starting other plants. Lettuce, radishes, tomatoes, cabbages, &c., may be grown around the melon plants, and as these are consumed or transplanted, room will be made for the melons to spread themselves, until finally they are left in possession of the whole bed, from which the frame can easily be removed when hot weather is fairly established.

Gooseberries, currants, raspberries, and blackberries will all bear a little fruit the same season they are set out, if permitted to do so. But it is better to defer their fruiting until the second season, from which time they will begin to bear in good earnest. Gooseberries and currants will not yield largely the second season, because the bushes will be small, but raspberries and blackberries will produce a full crop the second year.

Dwarf apples and pears are especially valuable because they come quickly into bearing. For a permanent orchard standard trees are preferable, but those who want fruit in a hurry should plant the dwarfs. It is thought by many that their precocity in bearing makes them short-lived, but they are well worth cultivating for immediate results. A nurseryman in Western Ontario, wishing to read a lesson to a resident in his village who was too impatient of results to plant an orchard, offered to set a dwarf apple-tree in his garden on these conditions:—that he, the nurseryman, was to have charge of the tree the first summer, and receive in payment the sum of ten cents for every ripened apple it produced. It bore seven apples, bringing the nurseryman seventy cents, twice the usual price of a dwarf apple tree. In ordering dwarf trees with a view to quick-fruited, it is well to let the nurseryman select varieties, as some bear much earlier than others.

Grapes afford fruit soon, usually beginning to bear the second and third year from planting. There is now a long list of them that may be selected from for out-door culture, but they vary in the time of ripening, and while there are many localities in Canada where any and all of them may be depended on to ripen their fruit, there are others where only the earliest kinds will come to maturity.

A good supply of the fruits that have been enumerated will furnish a family with these wholesome luxuries in a comparatively short period from their entrance on new premises. But while due attention is given to these, by all means let an orchard be planted, that ample provision may be made for the wants of the future.

LINDENBANK, in *Montreal Witness*.

EXPERIENCE IN PEAR CULTURE.

BY W. MCKENZIE ROSS, CHATHAM.

We find that the pear was common in the earliest times of the Romans; it was common in Syria, Egypt, and Greece. Virgil mentions pears which he received from Canton; Pliny describes the varieties in cultivation in his time as being numerous, and mention is made by the Emperor Tiberius of most delicate and agreeable pears.

The pear is not a native of America, but was brought from other continents. We read of its growing wild in some parts of Europe, Asia and China. It was brought to great perfection by such men as Van Mons, Knight, and many others of the present day. But I am not asked for the history of the pear, but the result of my own experience with it. I shall therefore begin with the little Amire Joannette, which yielded in 1879, being planted eight years, standard, $2\frac{1}{4}$ bushels, which were sold for $12\frac{1}{2}$ cents per quart, or \$9.00. In 1880 my sale book gives it credit for 64 quarts, and sold for \$8.00, besides a few quarts for the use of the house. It ripens about July 15th. I keep the soil clean and rich around it.

The next in order is the Doyenne d'Ete, which ripens here about the 20th July, and sells freely for $12\frac{1}{2}$ cents per quart. It grows well either as standard or dwarf, and is a most delicious little pear. The skin is clear yellow marked with small dots, and red next the sun; flesh white, melting, very sweet and juicy.

Beurre Giffard comes next, and is much larger than the former, with a greenish-yellow red next the sun. Flesh white and most delicious, and the fruit sells here for about 10c. per quart. The tree is a slender grower, but healthy, hardy and productive. It is ripe here about the last of July.

The Bartlett is a splendid pear. The tree grows upright, with straight yellow shoots. Skin smooth, yellow, with a blush on the sunny side; it is sweet, juicy, with a highly perfumed vinous flavor. It is ripe here from 25th August to 10th September, and sells for \$2.50 per bushel.

The Clapp's Favorite is my next,—a most gorgeous pale yellow pear, marbled and splashed with red and light brown. Flesh white, fine grained, juicy, melting, buttery, rich, with sweet perfume. I can see in imagination the lovely baskets of this beautiful fruit even now

before me. The tree is a rapid, straggling grower, with large shoots; it stands the frost and severe weather well; the bark is a yellowish-brown color, and is clean and healthy. Succeeds well as dwarf or standard. The fruit should be gathered some days before ripe; it will not keep long.

The Ontario Agricultural Commission after finishing their duties here paid me a visit, and expressed their delight while looking at this noble pear, as well as others that I may mention hereafter, and with my mode of cultivation. With the liberal aid given by the Ontario Government, the Fruit Growers' Association ought to play a conspicuous part in this great land of my adoption. British North America ere long will be one of the greatest countries under the sun, and one of the most valuable possessions of the British Empire. Canada is said to be the brightest gem in the British crown. Itself of richer value, it will be guarded with all the power, wisdom and love of a family heirloom. On these grounds, therefore, we can never cease to be affected with everything that affects the parent state.

I fear that I have trespassed on your valuable space, and perhaps allowed my mind to run into a strain foreign to the HORTICULTURIST, but being one of its first Directors I trust you will forgive me. It is this little monthly that is always welcome to my home, and has my best wishes for its future usefulness.

ON PEAR BLIGHT.

BY PROF. E. W. CLAYPOLE, YELLOWSPRINGS, OHIO.

In the number for April, 1881, appeared a useful and rational letter from "Rusticus" on pear blight. "Rusticus" records his experience, and then clearly and logically reasons from it to its cause. He does not jump to the conclusion that wood ashes are a specific remedy for this the most deadly enemy of the pear and apple in many parts of the country, but suggests that the ashes may improve the condition of the tree, and so make it less susceptible of injury from the blight. The fire-blight is now believed to be a parasitic growth in the soft bark of the young twigs, which disorganizes the tissue and destroys the starch; at least this is the opinion of Prof. Burrill, who has made a special study of the subject. Now it is well known that though

such parasites often attack perfectly strong and healthy plants, yet their attacks are more common and more deadly on such as are weakly and out of condition. Hence the more rational mode of treating all such enemies is to tone and strengthen the system of the plant, so as to enable its sap to resist the decomposing action of the ferment. Now the potash which wood ashes contain is well adapted to do this. In fact the exhaustion of available potash in the soil is in my belief one cause of the failure of old orchards, if constantly cropped, to keep up to their former standard of yield; and here, by the way, lies one of the physiological objections to the constant cropping of orchards as practiced in Canada and the States. But I cannot enter now upon this point.

I should be very glad to hear further from Rusticus, or any other of your subscribers, in reference to this topic. I should like to hear of others who have tried ashes. After the winter rains and snows are over, the ground is too dry on the surface and the rains too occasional in most seasons to leach the ashes and carry the potash far enough into the ground to accomplish its purpose. Moreover, the fire-blight shows itself and does its mischief very early in the season. It is consequently too late now to expect much from Rusticus' remedy this year, but if any of your subscribers will go to the small trouble and expense of watering some of their best trees with saltpetre dissolved in water at the rate of one pound to a gallon, and put about three gallons to every tree, washing it in with as much more water as they think necessary, I should be glad to hear from them during the summer what effect if any they have observed.

PREPARATION OF NUTS FOR PLANTING.

BY THOMAS COATES, MILTON.

In the February number of the HORTICULTURIST you ask some of your correspondents to answer Mr. Hoover's question as to the best way in which to prepare nuts for planting. The answer is very simple,—they need no preparation. Take the Canadian walnut for instance. As soon as the nuts fall from the tree gather them up just as they are with the hulls on, and plant in a trench three or four inches deep, about four or five inches apart, and cover them up. If

the nuts are well matured they will come up as thick as blackberries. The Canadian walnut is a greedy feeder, and should not be planted within speaking distance of fruit trees. The popular fallacy that the moisture distilled from these leaves after dew or rain is poisonous to everything on which it may fall is an absurdity. Let anyone convince himself by taking up a walnut root an inch or more in diameter, when he will find it literally covered with fine fibrous roots like the hair in a horse's mane. That is the secret of the poison. It is an old saying, but probably a little exaggerated, that five or six walnut trees planted through an orchard will destroy it. They make beautiful shade trees, and are very easily raised.

THE BEN DAVIS APPLE.

The Ben^s Davis is the most profitable winter apple, the most saleable, and most profitable to the orchardist, and sells more readily to dealers and to the people, and when well grown brings a greater price after mid-winter than any apple grown west of Michigan; and that it is selling now this mid-winter as readily and for as good prices in all the large towns and cities in the west and south-west as the best Michigan and Northern New York apples! One could get certainly as good a price to day in St. Louis, and sell them more readily, for a thousand barrels of first-class Ben Davis as he could for the same amount of first-class Spys, Greenings or Baldwins. And what is very strange, people who appear to have a good share of common sense buy them year after year with satisfaction. This is no guess work; we have been in the market year after year, and seen it with our own eyes, and the market reports where apples are quoted by name will prove it. And all our large apple growers will give their evidence that we tell the truth. The apple is large and very handsome; the tree is very hardy, healthy, and productive, a beautiful grower in both nursery and orchard, and adapts itself to nearly all soils and locations. It is placed among the most profitable from southern Georgia to Maine; it is one of the easiest of apple trees to propagate. But for the man who knows what a *good* apple is, it is neither fit to eat nor cook. We have for many years past looked anxiously for an apple with all the good points of the Ben Davis, among the seedlings brought out from year to year, that had the qualities so sadly wanting in it, but as yet have failed to find it. The fruit show at the meeting of the State Horticultural Society, at Warsaw, last month, gave us some hopes that the day is not far distant when the Ben Davis would be superseded by some of the seedlings there shown. They all appeared to be very handsome and of extra quality for all the purposes that apples are used for. The Salome (not quite large enough) by E. C. Hatheway, of Ottawa, Ill.; the Illinois Beauty, by A. H. Gaston, of Lacon, Ill.; one shown by Mr. Worthen, of Warsaw, Ill.; the Wythe, of Warsaw, and

another seedling from the same town were all very fine apples—all natives of this State, and all attracting marked attention in good fruit regions among men thoroughly posted on apples for money. But time and trial can only tell their future. A score of years have been industriously spent in trying to supersede the Wilson strawberry and the Concord grape, and they rank no higher among good fruits than does the Ben Davis. Yet to-day they stand without a peer—for what? *making money*, and that is what we are all after.—*Prairie Farmer*.

CORRESPONDENCE.

LETTER FROM MANITOBA.

I have been nearly six years in Manitoba now, and am very much interested in all that pertains to fruit raising and forest tree culture, and any information I can give you on these two subjects, I would be most happy to afford you. So far, I have had very fair success with my small fruit (excepting gooseberries), but with apples I have not been so fortunate. The first ones I planted I obtained from Rochester, N. Y., and they died after I had had them three years—sun scalded. I planted out last spring six Wealthy, six Fameuse, six Northern Spy, and six Red Astrachan, besides a dozen of crabs, and half a dozen Early Richmond cherries, and I hope to have better luck with these. I have planted a willow grove to the west of my little orchard, a single line of willows on the south, and have a belt of bush on the north, so they are only unsheltered on the east. We have plenty of wild gooseberries, currants, strawberries, raspberries, plums, and a sort of high-bush cranberry, about the size of a Red Cherry currant; and I am going to try the effect of cultivation upon some of these. I planted out a number of raspberries from the bush, and the result was very encouraging, for some of the canes fairly broke down with the amount of fruit on them. We have plenty of wild grapes, and I am going to plant some tame ones. I have two Janesvilles heeled in, and will get some Champions and Moore's Early. Perhaps by cross-fertilizing with some of our native grapes, I may succeed in obtaining a variety perfectly hardy, and adapted to our somewhat peculiar climate. Late spring and early fall frosts are the worst obstacles that fruit raisers has to contend with here, but I believe that if our people went into tree-planting as they ought to do, that our extremes of climate would soon be modified. They could not succeed in raising apples, &c., on the prairies of Iowa, until they planted shelter, and I think when the people of Manitoba go and do likewise, that we will be able to raise many varieties of fruit that we have to import at present. We have one advantage that many parts of Ontario do not possess, viz: the soil does not "heave," and that is something for the Manitoba horticulturists. I have been trying, as far as my limited ability would allow me, to get our people to take more interest in beautifying their places, and adding to their comfort, by going in wholesale for tree planting.

—H. P. B., *Thornhill*.

MY EXPERIENCE IN FRUIT CULTURE, &c.

Some seven or eight years since I got 150 good pear trees, and all lived, I believe, but one, until about 4 years ago, when the blight took some of them. The trees were all true to name, which cannot be said of a great number of trees planted; nearly all of them have fruited; I have also about 350 plum trees planted out, besides a large number of apples. This part of the country is a good section for fruit, but we are troubled with the insect enemies as well as others, two most troublesome being the codlin moth in the apples, and the little turk in the plums. I don't consider the black knot of much consequence if it is watched and kept down, but too many let it alone, and I am afraid the act for its destruction is just like the thistle act has been, almost a dead letter. If I see any black knot on the stock or large branches I apply spirits of turpentine with a small brush, it kills it very soon, and does the trees no harm. I have proved this remedy time and again. If it appears on the small branches cut off and burn.

Mr. Hood, of Barrie, contributed a very good article on the Berberry in the April No. of the last Vol. of the *HORTICULTURIST*; but he seems not to have had much luck in raising it from seed. My intention some years since was to go on a farm, chiefly to cultivate fruit, and to grow some live fences, and knowing that Berberry would make a good hedge plant, I saved the seed in the fall and put it in a box mixed with earth, left it exposed to the frost; and in the spring, early, sowed it in rows, so that I could hoe it after it came up. My soil was a warm gravelly one. In the spring it came up by the hundreds, although I found some did not come up till near fall. It grew very fast, but out on the farm, which is rather a cold clay loam, it does not seem to make much growth, so I think it more adapted to a light soil. In my opinion it is a beautiful as well as a useful shrub, either grown in hedge or single.

I have been a subscriber for some years, and have all the Reports, which I value very much. I hail each number of the *HORTICULTURIST* with pleasure. When I get the last No. of each year, I pull off the covers cut out the name, date etc., and paste on the back, so that I have now three neat volumes. The colored plates also adds much more to the book. I think your subscribers have a big dollar's worth every year.

WALTER HICK, *Goderich*.

QUESTION DRAWER.

The codlin moth had been very severe in some localities, while others are only slightly affected. I believe my garden orchard was injured more than my neighbor's. Is it because well manured and worked well? Well underdrained? How would it do to work the ground in the frost season around the apple trees?

We have not been able to find that the larvæ of the codlin moth at any time enter the ground, and therefore can not see that the condition of the soil has anything to do with the presence of the codlin moth.

The Canadian Horticulturist.

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STRAWBERRIES.

The experience of another season with some of the more recently introduced varieties will not be without interest to all cultivators of the strawberry, and may prove useful to those who contemplate planting, especially those who intend to plant for market. The season just closed has on the whole been favorable to this fruit, especially in those sections of the country that escaped late frosts. The month of June was cool, with frequent showers and much cloudy weather, so that the fruit ripened up gradually and swelled to its full size. Reports from the City of New York say that never has there been such an abundance of strawberries, that the business has been enormous, and the supply fully equal to the demand for consumption in that large city and for shipping to other places, some having been sent in refrigerators to the West Indies. It is thought by some that the time is near at hand when they will be sent in this way across the Atlantic. As a matter of course prices ruled low during the height of the season, and growers did not always get well paid for the labor of production.

It would seem that the Wilson yet maintains its position as the great market strawberry of this country. With all its imperfections, its dark color, acidity, and the like, it seems as yet to be the mainstay of all who grow for market; and so extensively has it been planted, that when the crop of Wilsons is being harvested the markets are literally deluged with its berries, and prices rule low. In Toronto they were retailing at seven cents per basket during part of the season, and were sold in the St. Catharines market as low as four cents. From this, one would infer that those who grow for market might profitably turn their attention to those varieties which ripen either before or after the Wilson, and so secure a better price by avoiding the period when the great rush of the Wilson comes in. Besides this, the public are fond of variety, and those who are able to gratify their taste will

pay a higher price, if needs be, for the sake of a change. So that if a berry can be found of a different appearance and flavor, even if ripening at the same time with the Wilson, which is sufficiently reliable, productive and popular, it may be more profitable to cultivate that variety to some extent, instead of relying exclusively on the Wilson. The thing to be ascertained is whether we have such a berry, and the object of these notes is to lay before the readers of the HORTICULTURIST such information as we now have of the several varieties claiming attention, so that they may be aided in the selection of those they desire to plant.

Prominent among the sorts of later introduction, we notice the

CRESCENT SEEDLING.

This variety was introduced by Mr. Parmelee, of New Haven, Conn., about ten years ago, and has during this time become widely disseminated. In so far as we have had an opportunity of observing it, we have found it to maintain its eastern reputation for hardiness, vigor of growth and great productiveness, and this seems also to be the general opinion of those Canadian cultivators who have given it a trial. It is certainly a most vigorous grower, having large, healthy foliage, which does not seem to spot or scald in the hottest weather, and it is also quite able to endure our winters as well as the Wilson. In point of productiveness it rivals the Wilson, being considered by many of our observing cultivators *as productive* as that well known variety. On account of its very vigorous habit, we are confident that it should be allowed abundance of room, in order to the production of the finest berries and largest crop. The berries are not of extraordinary size, but there are less small berries than of the Wilson, hence the crop is more uniform. The color is a bright scarlet, which is more attractive than the dark, dull red of the Wilson; in flavor it is not so tart, nor is it any richer, if as rich; the flesh is a light pink, and not quite as firm. These seem to be the points of this berry. The fact that the flesh is not as firm as that of the Wilson detracts considerably from its value as a shipping fruit, but for a near market its bright color and fair, uniform size, coupled with the vigor, hardiness and productiveness of the plant, give it considerable value. It should be stated that the flowers are pistillate, and therefore it should be planted near other varieties which produce an abundance of pollen.

CUMBERLAND TRIUMPH.

This variety has received considerable attention since its introduction in 1874, by A. Miller, Carlisle, Penn. The plant is vigorous and hardy, and fairly productive, but by no means equal in this respect to the Wilson. The berries are large and uniform, and of a bright, light red color, and of fair quality, but too soft for shipping any distance. In many respects it resembles the variety raised by J. H. Biggar, of Drummondville, and named by him the

NEW DOMINION.

This possesses all the good qualities of the Cumberland Triumph, and is at the same time more productive, of somewhat firmer flesh, and better flavor. It is a very showy, handsome fruit, of large size, very regularly formed, and very uniform, ripening towards the close of the Wilson crop; and though not of the highest flavor, sells well in a near market, where it can be offered fresh. But it also is too soft to bear long journeys by rail, and is in danger in such cases of arriving in a damaged condition.

MINER'S PROLIFIC,

(sometimes called Miner's Great Prolific,) originated with T. B. Miner, of Linden, New Jersey, in 1877. This variety proves to be much like the Wilson in color and size of fruit, and also in quality. It is scarcely so firm in flesh, and so far as present experience enables us to speak of it, we do not find in it any desirable quality that we have not already in the Wilson.

GLENDALE.

This variety was brought to notice by W. B. Stover, of Akron, Ohio, who found it growing in the Glendale cemetery in 1871. It has some good points for a market berry, and is deserving of careful trial. The plant is healthy and vigorous, and yields good crops, though not equal in productiveness to the Wilson or Crescent Seedling. The berries are not very large, but more uniform in size than those of the Wilson. The color is a light scarlet; the flavor good, but not best; the flesh is firm, and the calyx large, so that it bears carriage well, and the time of ripening is later than that of the Wilson. It will thus be seen that in color of fruit, firmness of flesh, and time of ripening, it possesses three good points for a profitable market berry.

SHARPLESS.

Much has been said about this berry, and its praises have been sounded forth far and near. It was raised by J. K. Sharpless, of Catawissa, Penn., in 1872. The plant is vigorous, and the leaves are large, and seem to be able to endure the heat well. The fruit is large, often very large, and showy, irregular in form, of a bright scarlet color; flesh tolerably firm, flavor good, and the time of ripening somewhat after the bulk of the Wilson has been gathered. It is impossible to speak positively of its productiveness, but it seems to yield best when grown in hills or very narrow rows. In a matted bed the yield is not large. The size, color, and time of ripening of this berry are strong points in its favor as a market fruit, and in a discriminating market, where large size and showy appearance will command increased price, it gives great promise of being a profitable berry.

EARLY CANADA.

The credit of originating and disseminating this strawberry is due to one of the members of the Fruit Growers' Association of Ontario, A. M. Smith, formerly of Drummondville, now of St. Catharines. The writer first saw it in his plantation at Drummondville in the summer of 1878, at a time when the bulk of the crop had been harvested, but enough of the fruit remained to enable one to judge of its quality and prominent features. The plant is hardy and healthy, much like the Wilson in appearance and habit of growth, and apparently equal to it in productiveness. The fruit in size, color, firmness of flesh, and form seems to be the counterpart of the Wilson. The flavor is also much like that of the Wilson, though not quite as acid. Its time of ripening is about a week earlier than that of the Wilson, growing side by side and of the same age. This variety has not yet been widely disseminated nor extensively planted, but we hear of a person near Jordan Station who planted an acre of it in the spring of 1880, and this year gathered four thousand five hundred quarts of berries from it, which sold at very satisfactory prices.

The profitable marketing of strawberries is a problem into which many elements of calculation necessarily enter. The character of the market where the bulk of the crop is to be sold is an important element. Can purchasers be found who are willing to pay a good price for extra fine fruit when the market is full of that of a medium

quality, is a question that presents itself prominently to the mind of one who is thinking of growing fruit for that market. In many places a strawberry is a strawberry, and fine quality and showy appearance will not command a higher price than the medium grade. But if the market is one where bright color, large size and pleasant flavor will command double the price of those of medium quality in these respects, then one may venture to plant a few varieties for the express purpose of meeting that demand. Having such a market in view, it would seem that Crescent Seedling, New Dominion and Sharpless might be planted with good prospect of receiving satisfactory returns, to be preceded by Early Canada and followed by Glendale.

SHEEP IN THE ORCHARD.

A correspondent of the *Vermont Journal* gives the following interesting experience in keeping sheep in an apple orchard:

My apple orchard covers thirty-two acres of ground, and in addition to making it a run for some thirty hogs, I have during the past two years kept from 150 to 200 sheep and lambs in it during the summer. Of course that amount of land, if it was in good seeding and free from trees, would not pasture so much stock, but in addition to the pasture, I feed enough grain and wheat bran to keep them in such condition that the lambs shall be large enough to wean in July, and the sheep sufficiently thrifty to accept the buck after weaning the lambs, and thus drop their next lambs for early winter feeding next winter.

This, I find, costs me less than to hire the same number pastured by the week, and being crowded they eat every spear of grass, every weed and green thing close down, and eat every fallen apple as soon as dropped; for the latter purpose I find sheep much better than hogs, for while the hogs sleep so soundly as not to hear an apple drop if only a few feet away, a sheep never sleeps, so that it is on hand for every apple as soon as it touches the ground.

I let them run here until time to gather winter fruit, and although they will eat a few apples and a few twigs from the ends of the lower limbs, as they bend down with their load of fruit, I find my fruit each year growing fairer, with less and less wormy apples, and my trees, manured with the feeding of so much grain, are looking remarkably healthy and are productive. To prevent their gnawing the smaller trees, I wash the trunks with a solution of soapsuds, whale oil soap and sheep manure, about once each month, and besides I give the sheep a constant and full supply of fresh water; this is very important, for in hot weather they get very thirsty and will eat the bark from larger trees even, unless they have plenty of water.

I like this manner of treating my orchard very much ; what it would cost me to hire the sheep pastured each week will buy at least 600 pounds of bran and 400 pounds of corn, making an aggregate each summer of over ten tons of the very best kind of fertilizer for the orchard. For the money I pay for feed I get my sheep kept in the finest condition, have the lambs growing finely all summer, and have the whole amount of feed bought (which is worth all it costs for the purpose) scattered about the orchard in the best possible manner. Thus, you see, I prove that it is perfectly practicable to "eat my cake and have it, too," or in other words, to get twice value received for the money invested, besides having codlin moth successfully trapped.

IRRIGATION.

BY P. E. BUCKE, OTTAWA.

It has given me a great deal of pleasure to find that my papers on irrigation, read before the winter meetings of the Fruit Growers' Association in 1877 and 1878, have at last met with some attention in the public press, and I have to thank my brother Director, Mr. Beal, of Lindsay, for bringing forward this subject, which I consider one of the greatest importance as regards the wealth and prosperity of Ontario.

Some knowledge of the subject of irrigation and the requirements of plants would convince the most sceptical that "in the greater part of the hot growing season water is in a great measure wanting, because there was not enough moisture to moisten the ground." Some very interesting experiments have been made at various times, which would tend to bear out this statement. One of these was conducted by J. B. Lawes, of Rothamstead, England, with the view of ascertaining the amount of water required for a crop of wheat, and it was shown "that for every pound of dry matter produced, 200 pounds of water was evaporated through the leaves, and for every pound of mineral water assimilated by the crop, 2000 pounds of water passed through the plants." Mr. Lawes therefore came to the conclusion that the natural supply of rain water was totally inadequate for a maximum crop, and that leguminous plants, such as beans and clover, require a much larger supply of water. If such is the case in the humid climate of England, how much more so must it be under the bright sky and dry atmosphere of Canada. Under Mr. Lawes experiment the plants were given all the water they required, and the manures used were the

most active that could be produced, being a mixture of phosphate of ammonia, nitrate of potash, and chloride of sodium.

From similar experiments made at the Agricultural Observatory at Montsouris, France, results of a like nature were found to follow ; and it was demonstrated that for a crop of forty bushels per acre of wheat, the minimum amount of water evaporated through the leaves was six inches in depth over the whole surface of the field, whilst the maximum reached was seventeen inches of rainfall. Though 40 bushels of wheat is considered a good crop in this country, from 64 to 66 bushels are not uncommon with the farmers in England. If however only six inches of water is evaporated through the leaves, when we take into consideration the amount evaporated from the ground, the quantity of water that runs away during the heavier rains, and that which is lost unassimilated through the drains, it will be evident the rainfall of say half April, May, June, July and August,—the growing season,—amounting to $13\frac{1}{4}$ inches, (the average rainfall in Canada,) is “not enough to moisten the ground,” and that “water is in a great measure wanting.”

It is utterly impossible in Ontario to rival the crops of England without a larger supply of water than the clouds are willing to give, and if such is the case with wheat how much more is it with regard to the grasses and the more succulent garden vegetables. Every year we see the pastures more or less burned up, and even the foliage plants, with the exception perhaps of Indian corn and millet, would give a much larger yield if water were at hand for irrigation.

It is hardly a fair comparison to set the climate of Ontario and England in juxtaposition with regard to irrigation, as there is relatively no similarity. The evaporation from the sea keeps the atmosphere there continually moist. We hear of such things as eight hours sunshine in eighty days, I think in the year 1877, but of course in the year referred to the crops were unusually bad, whereas the average of cloudy weather here is only 0.61.

I am aware that sewage farms have not so far met with the success anticipated. It appears that the thicker parts of the manure collect around the stems of the grass plants, and the growth is checked or decay ensues. But water meadows have always proved a success.

The vineyards of the Crimea which are planted in four villages, and extend over an area of 15,000 acres, are regularly irrigated,

commencing from the time when the vintage has been completed in the autumn, the watering is continued until the fruit sets next spring.

Mr. Beal thinks that sufficient information was not given in the papers referred to on irrigation read at the winter meetings of 1877-8—see Annual Reports for those years. I can only say that the time of these meetings is limited, and the subject of irrigation is a long one. To have travelled over all the ground (or water) would have wearied the audience. My object was merely to draw attention to the subject generally, trusting that parties more conversant than myself, and more able writers, would give their experience.

A general system of irrigation, such as is required for Ontario, would have to be undertaken either by the Government, as in Europe and Asia, or by companies, as in California. It would not be possible for private individuals to undertake the artificial watering of more than a few acres. Irrigation on a large scale would require legislative enactment for the right of way of large canals, heavy cuttings and embankments, and the use of water from streams at present flowing. It would therefore have been useless to give any estimate of the cost of the systems employed by private individuals in England. There also the cost of labor and material is cheaper than here, and a smaller supply of water is needed.

In the south of France, where the climate is hot and dry, and irrigation is extensively practiced, from $3\frac{1}{2}$ to 4 inches of water in depth is applied to the land every ten days; and this supply is the basis for all contracts between the government, which looks after the water supply, and the owners of the canals. And this may be taken as the medium amount required in Canada, as the climate and circumstances are somewhat similar. Some crops and soils require more, and some less.

From observations made by Mr. Dickinson, Abbots Hill, England, extending over eight years, he found that ninety per cent. of the water which falls during the summer months was evaporated from the soil. If such is the case in a cool, cloudy climate, what must it be here, where the temperature is from 15° to 20° warmer, under the direct influence of vertical and unveiled sun.

The Early Purple cherry proved to be a very profitable crop this season, selling readily in Montreal at from 15c. to 20c. per quart.

HORTICULTURAL GOSSIP.—XIII.

BY L. WOOLVERTON, GRIMSBY.

THE FOREST TENT CATERPILLAR, (*Olisiocampa sylvatica*), is more numerous this year about Grimsby than ever I have seen it. I had just read the other day of the great devastation committed by the army worms in northern New York State, when I found our orchards swarming with these caterpillars. Leaves were loaded with them here and there on each tree, and great broods on the branches.

They differ from the American Tent Caterpillar, (*C. Americana*), in that they do not congregate under webs, and in having a series of white stripes along the back instead of a continuous white line. Another distinguishing feature is the color, which is of a paler hue. Generally they are not friendly with the last named, seldom being numerous in the same orchard. How true it is that the fruit grower to be successful must exercise the most restless vigilance. These enemies will very speedily strip an orchard bare of foliage if left unchecked. I found I must deal carefully with them, for they are more wary than their American cousins, which hide under their webs and calmly submit to death. They will drop to the ground if disturbed and escape unless you are prepared for their manoeuvres. Where I found them congregated on a limb I gathered them on a flat trowel-shaped board and there destroyed them, and where they were huddled on a leaf high up, I cut the twig down with a long Waters' pruner and stamped out their hateful lives.

THE FALLING OF PEACH LEAVES is a more perplexing trouble to peach growers just now than any insect foe, for we know no way of meeting it except with resignation. What does it mean? The leaves throughout the orchards are wilting and falling—we know not why. Some trees look as if they were just transplanted, and were dying for want of moisture. A little while ago the trees were full of blossoms, and peach growers were beginning to solace themselves with the expectation of a good crop and long prices. But, lo! in a night our hopes are vanished. Is it a premonition of a wide spread destruction of peach orchards by the yellows, or is it some new disease? We are yet at a loss to say.

THE YELLOWS.—A meeting of the Fruit Growers' Association of Grimsby was held the other day in the Town Hall, Grimsby, for the

purpose of taking steps to give effect to the law just enacted for the prevention of the spread of the yellows in the peach. This law provides that any five freeholders in any municipality may petition the council of such municipality, or of any adjoining municipality, for the appointment of an inspector. The duty of this officer shall be to examine all orchards wherein yellows are supposed to exist, and to give notice to owners to cut down and burn diseased trees. The owners are then compelled to destroy such trees within seven days after such notice has been served. This meeting took the initiative in this matter, by appointing a committee of five in each municipality of the peach growing district, who should be urged by the Secretary to take immediate steps in their respective localities for the enforcing of this Act.

THE DOYENNE D'ETE PEAR.

BY J. M. MCALINSH, MISSOURI.

The Doyenne d'Ete is the most profitable variety of pear I grow. The fact of its being so, however, is not so much due to any merits it may possess as to exceptional circumstances. It is the earliest good pear we have, ripening about the first of August, a time when in this section of the country fine fruit is rather scarce, strawberries, cherries and other early fruits having about gone by, and fall pears, plums, &c., not yet being in the market. The tree is a fair grower, and although it cannot be classed among the very hardy sorts, still it can be grown successfully throughout a large part of Ontario. It bears abundantly when quite young, either as a standard or dwarf, but except when a small tree is wanted for the garden I see no inducement to grow it as the latter. A larger quantity of fruit can be grown with less expense on standards. The fruit is of small size, but as a dessert pear it ranks first quality. When ripe it is of a bright yellow color, and the best specimens are usually shaded with red. Those who are growing pears for family use should plant a tree of this variety—probably one will be sufficient. So long as it is grown in small quantities as a market variety, it will probably prove profitable, but if it be grown extensively the market will soon be glutted, for it is too small to be profitably used for any purpose save as a dessert fruit.

WINDOW GARDENING.

The question is often asked: How often should I water my plants? Although a seemingly simple question, it is under all conditions, a difficult one to answer, as some plants, even of the same kind, require different supplies under different conditions. Take geraniums, for instance. When growing with full vigor, with the pots well filled with roots, there is but little danger of giving too much. Every day will not be too often if the weather is clear. Take the same plant with but a small number of leaves on it, and newly shifted into fresh soil, with but few roots, and watering once a week may even be too often for it. All soft wooded plants growing vigorously require an abundance of water; always when they are the least dry, which can be told by the surface of the soil getting white, or when, the side of the pot being tapped with the finger, a hollow sound is made. By feeling the weight of the plants, a little practice will suffice for knowing pretty nearly the condition of them, whether wet or dry.

Plants sparsely supplied with foliage and with few roots, require sufficient water to keep them in a healthy condition; but care must be taken not to approach anything like a saturation of the soil. Succulent plants, such as agaves and cactuses, require but little water. When at rest, their succulent leaves serve for storing up water sufficient to keep them in healthy condition for a long period. Deciduous plants—such as fuchsia and crape myrtle—during the time they are without leaves should not, however, be allowed to get too dry. As the stem and branches evaporate moisture, sufficient water has to be given at the roots to supply this evaporation; for, if not, the roots will eventually shrivel up and die.

The temperature of the water supplied to plants should be about the same degree as the temperature of the room in which the plants are growing; or, if a little higher, will be a benefit, rather than anything else. And when water is given, sufficient should be applied to thoroughly saturate the soil. A mere dribble on the surface does more harm than good, as it draws up what moisture there may be in the soil below where it is wet. Plants should not be allowed to stand in saucers filled with water. Give sufficient water to run through into the saucer. But then empty it out and do not allow the plant to remain in it. During cold weather watering is better to be done in the morning, as then all superfluous moisture gets a chance to evaporate before night.

The temperature at which plants should be kept during the winter is lower than a good many would suppose. High night temperature to both green house and window is injurious, the results of which, are weak and slender growths, with but few flowers being produced. A temperature of 45 degrees during the night with 60 to 65 degrees during the day time is high enough for most plants. Of course there are plants which require a good deal higher temperature than this but they are not so well suited for window culture. The main aim should be a steady temperature more than a high one. A high temperature to-day and a low one to-morrow, has a very injurious effect upon all kinds of plants, and should be avoided as much as possible. Pans for evaporating moisture should be kept on the

stoves during severe weather, when plants are growing. It not only helps to prevent gas from having an injurious effect, but modifies the temperature to a great extent. The most effectual way of fertilizing plants in pots is by applying it in a liquid form. Caution is necessary, however, not to apply it too strong. Weak and often is the best method and has the most beneficial results.

On the afternoon of warm days it is a great benefit to growing plants to have their foliage sprinkled. It helps to wash off the dust and keeps the plants in a healthier condition. Cleanliness with plants is a great source of success. An occasional sponging of the leaves frees them of insects and gives them a chance to breathe more freely than when coated over with dust. Fresh air must be supplied to plants, as well as animals to insure good health. On all good days give enough to change the atmosphere of the room. It is best given at the top of the window, as a circulation is then made without causing a draught, which, under all conditions, avoid. Rather than have a cold draught rushing through the plants, keep the window closed, and there will be sufficient air admitted through the laps to benefit them.

A tablespoonful of ammonia in two quarts of water is strong enough for the most vigorous plants and has a wonderful effect upon most all kinds of plants. Guano is an excellent fertilizer, but has to be used with caution, as a little too much may destroy the roots of the plants to which it has been applied, and may lead people to look for the wilted condition of the plant to some other cause, and apply remedies which will prove more destructive than beneficial. Just sufficient to slightly color the water is strong enough to use guano in a liquid form for plants. Soot makes excellent manure for plants in pots, if judiciously applied. It gives a bright green tint to the foliage and deeper colorings to the flowers. On some kinds of plants—such as hydrangeas—it changes the color of the flowers altogether. It is difficult to mix soot with water, if put into it loose; but when tied up in a cloth, and then soaked in the water, it can be pressed out and made as strong as wanted. Only very small quantities should be used. If applied strong it destroys the roots of the plants, like guano. Pigeon and hen manure make good fertilizers for plants; if coal be mixed with it, the smell is mostly destroyed; but caution has to be observed in its use, as it is like guano, very strong, and injurious to plant-life when used too strong.

All plants grown in greenhouses and windows are liable to insects of some kind. Some kinds of plants are more subject to the attacks of insects than others, and some kinds of insects are more easily destroyed than others. The best preventive of insects of all kinds is thoroughly syringing the plants that endure it without injuring the foliage. Some kinds of plants, such as the fine-leaved begonias and Chinese primroses, which are both very impatient with water overhead, are not liable to the attack of any kinds of insects. A dry, warm atmosphere is just the condition for insects being produced in large numbers, and is a condition unsuitable for plants thriving in. It is generally unhealthy plants that

are first attacked by insects. Plants in a vigorous healthy condition repel them to a great extent.

Green fly is the greatest pest in the way of insects we have. It increases so fast that in a short time after the first of them appear they are to be found in large numbers. Fumigating with tobacco is the most effectual remedy for the destruction of this pest; in fact, in our green-houses, is the only remedy. As soon as they appear, place the plants under a barrel and place some burning tobacco stems beside them. As soon as the barrel gets filled with smoke, lift out the burning coals, to prevent too much heat, as it is heat, and not smoke which destroys the leaves of tender plants. Heliotropes, salvias, and similar plants are easily hurt with the smoke. Caution is, therefore, necessary, if any of them get covered with fly, that smoking be done gently. On the morning after fumigating, give the plants a good syringing, to clean off the insects. The foliage of plants to be fumigated should be dry, as they are easily injured when wet.

Red spider is the worst insect in number which gives us trouble, and is produced where the atmosphere is too dry and warm. In an atmosphere where plants are growing vigorously, this insect is never seen. To get rid of it, frequent syringing is needed. It appears generally on the under side of the leaves; is a small red insect and is not often known to be on the plant until the foliage begins to get discolored by its ravages. Rose leaves, when attacked by it, get brown on the under side and finally drop off. The thrip is an active little fellow, generally doing his depredations on the under side of the leaves. It is a long and slender creature, with very narrow wings, and proves very destructive when it once gets a foothold. Fumigating with tobacco and washing the leaves are the best remedies for its destruction.

Scale or coccus is a common pest on a good many plants, especially hard-wooded kinds, like oranges, oleanders, camellias and many others. It is to the superficial observer, stationary, but spreads rapidly, there being a great many kinds of them—white, brown and black. The white is the one which gives the most annoyance, being the most difficult to wash off, which is the only remedy for getting all the kinds destroyed. Use in the water, when washing them off, plenty of soap and tobacco juice. Mealy bug is a loathsome looking creature, something like the above, but has a mealy covering looking like down. Washing and brushing with a soft brush is the best way of getting rid of them.

Plants which are regularly washed and syringed are never much infested with insects of any kind and if any of the kinds mentioned above first make their appearance destroy them by this means before a foothold by them is secured, and there is but little trouble in keeping them from doing much injury.

Worms in pots often give considerable annoyance to plant growers but a little lime put into the water will expel them. Soot answers the same purpose.—*Ohio Farmer.*

CORRESPONDENCE.

SEEDLING PEACH.

You ask, concerning those peaches I sent by mail, "Is the tree more hardy than other sorts?" I think it is; it never has winter-killed, except winter before last the tips of the limbs in some places were hurt, but the cause was unusually late and heavy growth. The limbs grew three feet and more, and that winter the thermometer went down to 25 degrees below zero here. The tree stands in front of my back kitchen, facing the south, consequently it blossoms earlier than it otherwise would; and last spring it was in full bloom when we had a heavy white frost covering the grass, but it come out all right so you can judge of its hardiness.

—MANNING BROWN, *Collingwood*.

MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.

Thanks for the *HORTICULTURIST*, which I always peruse with pleasure. This writing is to state that I intend to bring the American Pomological Society to Boston next September, and I desire that this appointment may not conflict with the days of other societies.—M. P. WILDER, *Boston*.

ENSILAGE.

This subject is attracting considerable attention among leading agriculturists in the United States, and many are very enthusiastic over the advantages which this system of curing green fodder is thought to possess over the usual method of preserving it by drying. In order to preserve fodder by this process it is necessary to construct what is termed a "silo," which is a pit or vat, whose sides and bottom are made water tight, with the top open. The sides or walls must be perpendicular, so that there shall be nothing to prevent the settling or compressing of the fodder which is put in. It is built near the barn, sometimes in the basement of the barn, for convenience of feeding. The forage, which may be clover or grass, corn sown thick or millet, Hungarian grass or rye, is cut and immediately run through a fodder-cutter, which cuts it into half inch lengths or less, and this is thrown into the silo and carefully distributed and tramped so as to pack it close, particularly at the sides and corners. When the silo is filled, the fodder is covered with about six inches of straw, and over this is laid planks, so cut as to fit the silo. Upon the planks weights are placed, stone, iron, boxes filled with sand or earth,—in short, anything that will cause a constant pressure upon the contents of the silo, following it down as it settles.

It is claimed by many who have tried this method of preserving fodder that it is cheaper in the long run than the old method of drying or making into hay, that the nutritious qualities are better preserved, and that consequently cattle thrive better when fed upon it, and that it more nearly resembles green fodder, so that cattle eat it more easily than they do the dry. Mr. Henry R. Stevens, of Dover, Mass., has been testing this method, and so well satisfied is he of its great superiority, that he has given his experience in the form of a little treatise on the subject, in which he gives not only his own experience, but also that of some twenty others, with ample directions based upon his experience. At page 49 he gives Professor McBride's opinion of the advantages of feeding ensilage over the same fodder in a natural or green state, who had experimented at the University Farm in Tennessee with about seventy tons, who reports that it was eaten greedily by all kinds of stock, and he concludes that it is fifty per cent. cheaper than hay. This little treatise costs only fifty cents, and to it we refer our readers for full details, believing that the subject is worthy of attention especially by those farmers who are raising stock or engaged in dairying.

TREE PLANTING AND PUBLIC MORALS.

The real text of my subject is a little different from my caption, and reads "our growing horticulture and its effects upon public morals." Perhaps, at first sight you and many of your numerous readers may be considerably puzzled to see the connection, and ask, Where is the relationship between tree planting and public morals? But upon a closer inspection, and a more intimate acquaintance we think that an obvious relationship does exist between the two seemingly incoherences. It is sometimes so as you know, in other matters of great importance to the general weal; the relationship between sobriety and success in life, for instance, is not very clearly discernible by some of our fast young men, who are breaking through all friendly restraints and living questionable and fast lives, thinking readily to attain ultimate success and outstrip their sober, but slower companion, who will most certainly come off victorious in the end. "Our growing horticulture" is a text of importance to the best interests of the country. I see among the items of your Forest cotem. that the delivery of fruit and ornamental trees at this station, this season, has been enormous, and he estimates the trade in his vicinity alone at \$2,000 annually. This, for such a locality, is a vast sum to contribute to the planting every year, and it may be taken as an idea of our growing horticulture generally. This growing condition of our horticulture, is not alone indicated by the amount of trees bought and planted by our people, but also by the

beautiful locations of rich and valuable soil bought, laid out and prepared for horticultural purposes, by the flowers and flowering plants and shrubs bought and tended solely for purpose of decoration and ornamentation. Only just quietly compare for a moment this state of things of the present time, with those of a few years ago and the term "growing," we think, but faintly express the contrast, and but faintly indicates the strides of our modern horticulture. Now Sir, what do you honestly think will be the legitimate effects of this wonderful horticultural progress upon our people? Where will these effects be most readily and distinctly read and deciphered? In proportion, as the private or individual morals of people are affected for good or ill, such is also the effect upon their public morals; for in morals as in the concentrated forces of the ocean, the whole is made up of its individual parts. The family that is carefully, and industriously educating itself in each of its members, in the ennobling pursuits of horticulture, have little or no time for the corrupting influences of the street corners or the vulgar gatherings of vile centres. The youth, be they male or female, who are tending a garden under good direction and advice, have few hours and fewer quarters to spend in scenes of gambling and the corrupting associations of our public inns. Only drive through a section of our country, and take particular notice of the elevated condition of their horticulture, their extensive orchards of fruit trees, their live and beautiful hedge rows, their beautiful thriving streets, and their extensive well kept home gardens, judiciously tended, and filled with nourishing and health-giving vegetables and fruits, and above all considered in point of morals, their rich and splendid collection of living flowers tended by soft and delicate hands, the whole is a voluminous index of their public morals, and of their social life. Among such a people the devastations of degradation is not so much as known, and the withering, blasting influences of vice are never felt, because these have plenty better else to do. Our most sincere and earnest hopes are that these being influences for good, these cords of our national home life may be greatly extended, until our whole country in all its parts shall be under their protecting, refining, and elevating power. Now sir, as I hear you have the Temperance Act of 1878 in force in your county at present, prohibiting the public sale of useless intoxicants, is it not think you very desirable and even probable that much of the valuable time and money worse than wasted on these enervating commodities should be directed in the peaceful paths of horticulture. People will have more time, more money, and we are sure more ability to attend to these better things, and the fruits will be to them ennobling, enriching, and life giving. Let us earnestly work and hope for better days for horticulture in our fair land.—B. GOTT, in *Advocate-Adviser*.

CULTIVATING YOUNG ORCHARDS.—If you have money to fool away, seed down your young orchard to clover or timothy, or sow a crop of wheat or oats. If you want the trees to thrive, cultivate well till they are seven to ten years old. Spread ashes, manure, or salt broadcast. Stop cultivating in August, weeds or no weeds, and allow the wood to ripen thoroughly.

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[No. 9.

TWO NEW VARIETIES OF HARDY APPLES.

We have received from our President samples of the Grand Sultan and of the Grand Duke Constantine apples, varieties imported by him in the hope of adding something of value to the list of very hardy apples which can be successfully grown in the colder parts of the Province.

The Grand Sultan is a conical fruit, of good size, nearly white, with some faint streaks of red on the exposed side. The flesh is also nearly white, juicy, breaking, pleasantly sub-acid, but not rich. The core is large, reminding one of the core of the Yellow Bellflower. Mr. Dempsey says that it is a heavy cropper. In the climate of Prince Edward County it seems to do well, and to ripen early in August.

The Grand Duke Constantine is also conical in form, of a light straw color, beautifully striped and splashed with bright carmine, dotted with numerous gray specks. The flesh is nearly white, juicy, sprightly sub-acid, agreeable but not high flavored, core small. Mr. Dempsey says of it that it failed when worked on the Paradise stock, but that as a standard it is a good grower. Of its bearing qualities he is not yet able to speak, this being the first year of fruiting. It seems to ripen at the same time as the Grand Sultan.

Mr. Dempsey has taken great pains to procure apples and pears from Europe, in the hope of being able to find some that will be sufficiently hardy to endure the severe climate of northern Canada. In these two varieties he has doubtless found some that will do well where the climate is far bolder than it is in Prince Edward County. We seem now to have a sufficient number of very hardy summer apples, but yet lack in very hardy long keeping sorts.

RASPBERRY NOTES.

The earliest to ripen on the Editor's grounds this season was the

HIGHLAND HARDY.

It is of medium size, bright red in color, too soft to ship well to a distant market, and of poor quality. Yet notwithstanding all these disadvantages, its early period of ripening gives it a great advantage, and when marketed in pint boxes brought this season ten cents per box. The canes are hardy, and in good soil yield very good crops.

CLARKE.

This berry is of good size, the color is bright enough to suit the requirements of the market, and the quality is very good. We have not found the canes to be quite hardy; they suffer sufficiently in severe winters to affect the crop considerably. When not injured by the winter the crop is good. The berry is not as firm as some, but with care in handling it will bear shipment tolerably well.

FRANCONIA.

Could we make this variety perfectly hardy, so that it would endure our changeable winters without injury to the crop, we would not be obliged to seek further to find a very satisfactory market raspberry. When the canes are not injured by the winter they bear a large crop. The berries are large, deep red, firm enough to bear carriage well, and of excellent flavor. At one time this was considered *the* market berry, but of late years we hear but little about it. Our market raspberry growers have been trying other sorts which promise to be more hardy.

PHILADELPHIA.

The peculiar, dark, purplish-red color of this berry so detracts from its appearance that it is not popular in the markets, hence raspberry growers have in a great measure discarded it. But it is one of the most hardy varieties we have, and its crops are simply enormous. The berries are medium in size, not very firm fleshed, juicy and pleasant, but not high flavored.

CAROLINE.

This has been highly praised as the most delicious of all raspberries. It is said to have been raised from a seed of Brinkle's Orange,

and from its resemblance to the Yellow Cap, supposed to be a cross with that sort. The fruit (which we had from plants growing on the grounds of Mr. A. M. Smith,) in color and general appearance answered the description given of this variety, but were far from being delicious, on the contrary, they were seriously lacking in flavor.

TURNER.

We have been pleased with this variety so far as we have tested it. The season of ripening is nearly as early as that of Highland Hardy. The berries are medium in size; color bright and attractive; flavor rich and pleasant. The canes are strong, very hardy, and very prolific if the suckers are kept in subjection, but they come up very profusely, and if not treated as weeds will soon cover the ground and choke each other.

CUTHBERT.

A valuable market variety in the estimation of most planters who have given their experience with it. From our short acquaintance with this berry we are inclined to think favorably of it, and believe that in our climate it will prove to be valuable. The canes are hardy, vigorous and very productive. The berries are large, firm enough to bear carriage well, in color bright red, and in quality very good. We commend it to the careful attention of all growers of the raspberry, whether for market or home use.

NIAGARA.

This variety was raised by Mr. A. M. Smith, of St. Catharines, and gives promise of being a very valuable addition to the later ripening sorts. The canes, which are very vigorous, have during the past winter proved quite hardy on the writer's grounds, and borne an abundant crop, which continues ripening for some time. The berries are large, dark red, tolerably firm, and of very good flavor. We think it is worthy of very extensive trial.

Of the black-cap varieties, we name three as worthy of attention :

DOOLITTLE'S IMPROVED,

which ripens early, Mammoth Cluster, ripening immediately after, and

GREGG,

ripening last. These are all excellent varieties, and worthy of a place in every garden where it is desired to have a succession of these berries. The canes are hardy and bear profusely.

HORTICULTURAL GOSSIP.—XIV.

BY L. WOOLVERTON, GRIMSBY.

THE FOREST TENT CATERPILLAR, (*Clisiocampa sylvatica*).—A few additional facts about this moth may be interesting, as it is now foraging among our orchards in such abundance. It belongs to a large family of moths, the *Bombycidae*, which includes the silk worm and many other beautiful species. The moths of *C. sylvatica* appear about July 1st, and lay their eggs in clusters of 300 or 400 on the twigs of trees, coated with a gummy substance for protection. The eggs hatch out simultaneously with the development of the young leaves in spring, and immediately begin work. At intervals the worms congregate in masses and cast their skins, a fortunate thing for the orchardist, who can destroy them wholesale at such times.

May 27th I found on nearly every apple tree vast gatherings upon the trunks. I watched one individual moult. A slit was first noticeable on the back just behind the head. A few struggles, and a new head appeared from within the old one, just like it, but of a lighter shade; a few more struggles, and the whole body was dragged out of its old skin, which had become too narrow to hold its growing occupant. Their instinct is remarkable. If three hundred of them are knocked down upon the ground and fall at some distance from the tree, they at once make for the tree again—not one mistakes the direction, but with one accord they crawl towards the trunk.

Fortunately for us, this caterpillar has several enemies. Besides being subject to disease and frequently to death at moulting times, there are several kinds of parasites of the order *Hymenoptera* which prey upon it. The Ichneumon fly, (*Physsa Pimpla*), often deposits its eggs beneath the skin of the caterpillar with its long ovipositor. The *Pteromalus Clisiocampæ* is another great enemy, as its name would indicate. It is probably one of these insect friends that is spoken of in the HORTICULTURIST for 1878, p. 19, as saving the orchards in Perth and Middlesex in the year 1877, when the caterpillars were so numerous that fears were entertained that the orchards would be entirely destroyed by them.

In 1872 we read of the *Clisiocampa Sylvatica* visiting the country about Montreal in large numbers and completely stripping many trees

of their foliage. Now it is our turn to be favored (?) with a large invasion. We hope the parasites will do their part in the battle, but we need to do our part also if we would be sure of the victory.

CULTURE OF THE AMARYLLIS.

This is a showy and attractive class of bulbous plants, the typical species being *A. belladonna*, a native of the Cape of Good Hope. The main point of excellence in the culture of this plant is in securing a good supply of healthy foliage. The reason for so many failures with plants which produce their flowers at a different time from leaves, is in not paying sufficient attention to maturing and encouraging a good supply of healthy leaves. As soon as the plants have finished flowering, they begin to make a fresh growth of foliage, at which time they should be potted, using for soil good turfy loam and about a third of well-rotted manure. Be sure it is well decomposed, as fresh manure destroys the bulbs when coming directly in contact with them. Mix the whole with a good sprinkling of sharp sand. When the leaves and bulbs are well matured, gradually dry off and store away in some cool, dry place until time for starting them into flower, which may be done at any time desired by placing in a little heat, and supplying water.

The showiest varieties of *Amaryllis* can be grown by persons having no other facilities than a window for growing them, and by their constant yearly flowering, give as much satisfaction as any bulbous plant in cultivation. By having them make their growth during the summer months, they do not require much attention except to supply water. They may be kept in some sheltered position out-of-doors, and when growth is finished stored away until the winter months, when they can be placed in the window and water supplied. The recompense will be from two to four spikes—according to size of bulb—crowded with from one to four of those well-shaded flowers which have to be seen to be appreciated.

A. johnsonii.—I class this as the finest for general culture of this genus of plants. It is of the easiest culture; the flowers are of the most gorgeous colors, and produced in greater abundance and with more certainty than any other kind. There are a great many varieties of the species, differing in the brightness of their colors, and having white stripes in the centre of the petals.

A. ackermannii.—Another fine species, is of a bright crimson color. Of this species there are some most beautiful varieties, as also some hybrids, between this and *A. johnsonii*, which are very fine.

A. formosissima (*Jacobean lily*).—This is another easily grown kind with scarlet flowers.

A. atamasco is a white kind, free flowering, and easily grown by amateurs, and those not having any greenhouse.

—M. MILTON, in *Country Gentleman*.

SWEET POTATO CULTURE AT THE NORTH.

Many suppose that sweet potatoes cannot be grown in New England. I think they are in error; certainly they are as to some parts and soils, for I have known of others growing them; and as the potato bugs are so troublesome to the Irish potato, perhaps some farmer reader would like to know how to do it.

PLANTS.—If only a small patch is to be raised, plants are best obtained of those who grow and advertise them for sale; or they can be grown in the following way: Early in spring, according to latitude and season, put the potatoes in a hot-bed; if of large size, split lengthwise, laying the flat sides down close together; cover with about two inches of fine rich mold, the richer the better. When the plants show above ground, add another inch of fine soil. Water with warm water as occasion requires; protect the bed on cold nights, and give air and sunshine to make them hardy. When wanted for setting, uncover the potatoes and pull off the best slips, and recover to let all others improve.

SOIL AND PLANTING.—A warm, sandy soil with a good exposure is best, although heavier soils, if rich and exposed to the sun with protection from the cold will answer well. Mark the rows, which had best run north and south, $3\frac{1}{2}$ feet apart; on these marks spread liberally, good barn manure, and then from each way turn a furrow over the manure to form a ridge eight or ten inches high, the base of which should not be disturbed by the operation, and should be not less than one foot wide; the top, when finished, three or four inches broad on which to set the plants. As soon as danger of frost is past, set the plants 15 or 18 inches apart in rows thus prepared; set the slips down to the first leaf pressing the soil close to them, especially around the roots. Moist weather is best for setting, but set at any time, well watered and shaded, they do nearly as well, sometimes better.

A close, hard bottom to the row induces the tubers to grow "chubby," less long and slim; for this purpose strips of sod are laid in the bottom, where only a few are grown as in the garden. Manure does not injure the sweet potato, as it often does the Irish, but for abundant production it should be used freely. After culture consists in keeping down weeds with hoe or rake, and hauling the soil upward to the plants. Keep the tops in a line on the top of the ridge, and free from taking root, admitting the sun to warm the ground.

GATHERING.—If a few are desired before the crop is ripe, you can run the finger down beside the vine, and when a large tuber is felt, detach it and replace the soil, leaving the rest to grow. A light frost kills the vines. Now is the time for gathering; select the first clear, dry day, and turn them out with the digger, first cutting and removing the vines; a sythe will answer for cutting these. Dig in the forenoon, and allow two or three hours to dry, with full exposure to sun and air; handle very carefully so as not to bruise or otherwise mar them. For preserving for late fall or winter use, provide suitable boxes or barrels, and take them to the field, having sufficient fine cut straw or chaff to pack or fill all interstices and

keep them apart. Pack the potatoes in these receptacles as carefully as if they were eggs, using first a layer of chaff or straw, and then of potatoes, finishing the package on top with straw. Remove them to a dry frost-proof room or cellar, where they will not *gather moisture* or *get chilled* in the coldest of weather, as these are the two first essentials to their keeping through the winter, always providing you have well matured, ripe tubers, to store at first.—W. H. WHITE, in *Country Gentleman*.

THE PEACHES OF 1880.

At a meeting of the Horticultural Society of Western New York, a very interesting paper was read by W. C. Barry, of Rochester, N. Y., giving the results of last year's experience of the ripening of the different varieties. We give the paper in full for the information of our readers:—

The season of 1880 was remarkably favorable for the peach crop in western New York. An experimental orchard—embracing 114 varieties, which we set out three years ago—came into bearing for the first time, and enabled us to test the leading standard sorts, besides many of the older kinds which are little known, as well as several novelties. I give the results of our observations, naming the kinds as nearly as possible in the order of ripening.

THE EARLY SORTS.

On the 24th of July we gathered fine specimens of Briggs' Red May. This variety originated in California, and was one of the first of the early sorts brought to notice. It has much the same character as Alexander and Amsden, and is hardly distinct enough to be grown under a separate name. Mr. Myers, a prominent peach grower of Bridgeville, Delaware, says it is less liable to rot than either Alexander or Amsden. He also states that a well known pomologist of Georgia, after having seen Briggs' Red May two years, believes it superior to Alexander or Amsden for shipping.

July 26.—We have before us splendid specimens of Alexander and Amsden. The difference between them is very slight. Alexander, however appears to average larger, and is less liable to decay upon the tree.

July 27.—To-day we received a fine basket of Waterloo peaches, gathered from the original tree. These are fully up to the standard. Next year we hope to have fruit from our own trees, when the opportunities for comparison will be better.

July 29.—This morning we find upon our table a remarkable collection of peaches. Alexander, Amsden, High's Early Canada, and Harper's Early are ripe and beautiful. All these varieties bear a striking resemblance to each other. High's Early parts more freely from the stone than the others, and Harper's Early seems to excel in flavor.

August 2.—We sold Alexander and Amsden to-day, at the rate of \$3 per bushel. The specimens were superb, many measuring eight inches in circumference, and weighing $4\frac{1}{2}$ ounces.

August 4.—Early Beatrice is now ripe, but after enjoying such magnificent fruit as we have for the last few days, this small peach fails to give satisfaction, and is of little value here. Mr. Myers writes me that he has marketed thousands of bushels of this peach, and he finds it valuable; though small, it is produced very abundantly; the tree is hardy, and the fruit is exempt from rot.

August 7.—Early Louise, now in perfection, seems to be a profitable market variety. Mr. Myers says that in Delaware the tree is remarkably productive, and when in bloom it is capable of withstanding, without injury, a greater degree of frost than any other peach.

August 10.—That delicious peach, the Early Rivers, is now in fine condition for eating. In this vicinity it is, beyond question, the best variety we have. Mr. Robert Hogg, in his Fruit Manual says: "This peach was sent to me by Mr. Rivers on the 20th of July, 1867, when it was first produced, and I was so struck with its superiority over all other early peaches, and its perfectly distinct character, that I considered it a fitting opportunity to record the name of the raiser by associating it with a fruit which cannot fail to become a universal favorite. In France it succeeds so well that Mr. F. Jamin says it is the finest early peach in France. Its only fault is that it splits at the stone." In one of my reports on peaches, I expressed the opinion that Early Rivers would not be of much value for market, owing to its thin skin and delicate flesh, but Mr. Myers, who for ten years has made a specialty of peach growing for market, informs me that Early Rivers is the most valuable of any of the early peaches for market. It is a great satisfaction to be able to commend so choice a peach for both purposes. In many instances only the coarser fruits can be recommended for market.

August 15.—Early Leopold is too small, and the quality too poor, to render it worthy of a place in the collection.

August 18.—Rivers' Early York is the earliest freestone we have fruited. Fruit of medium size, good quality, and tree yields well. Snow is a beautiful white peach, especially valuable for canning and preserving. It deserves more extensive culture.

August 20.—Large Early Mignonne is of medium size, fine quality, and a freestone. The tree, loaded with fruit, presents a remarkably fine appearance.

August 22.—Hale's Early is ripe.

August 23.—Acton Scott, Early Rose, Early Savoy and Belle Coquette are good peaches, but not large enough to be grown profitably. Belle de Doue, Belle Beauce, Grosse Mignonne and Belle de la Croix have the highest flavor, and can be recommended to all seeking after delicious fruits.

August 25.—Two of the best peaches in our collection are now ripe. I refer to Haine's Early and Large Early York—varieties which are undoubtedly identical. I have no hesitation in placing them at the head of the list, either for garden or orchard. George the IV. is another high flavored peach, resembling the two last named very closely. Cooledge's Favorite is one of the most valuable varieties. The fruit is not large, but

handsome, and of good quality, and the tree is so hardy that this peach will always be a favorite in the northern sections of this country, where many kinds fail owing to the rigorous and changeable climate. Mountain Rose, of recent introduction, promises to be desirable for market. It is not so richly flavored as the above, but large and handsome.

August 31.—Shanghai, a very large Chinese clingstone peach, is ripe, and is remarkable for its fine flavor and handsome appearance. The tree is exceedingly prolific, and the fruit is so showy that it will take well in market. Most of the specimens measured nine and a half inches in circumference, and weighed eight ounces. It is a variety which merits attention.

THE SEPTEMBER VARIETIES.

September 1.—Early Alfred, Crimson Galande, Dagmar and Pucelle de Malines are handsome white-fleshed peaches of medium size; but ripening, as they do, about the same time as Crawford's Early and Surpasse Melocoton, they cannot compete with them, and we shall drop them from the catalogue. Crimson Galande, with its deep purple cheek, is very handsome, and a tree full of fruit is an interesting object to look upon. Crawford's Early, on account of its size and attractive appearance, maintains its reputation as one of the best peaches for market. Foster and Surpasse Melocoton are rivals which are steadily growing in favor, as both are superior to Crawford's in flavor, and they average equally as large, if not larger. We had specimens of Surpasse Melocoton weighing $5\frac{3}{4}$ oz., and measuring $8\frac{5}{8}$ inches in circumference. Foster weighed $5\frac{1}{4}$ oz., and measured $8\frac{5}{8}$ inches in circumference. Crawford's Early weighed 5 oz., and measured $8\frac{1}{4}$ inches in circumference. Richmond (Dr. Sylvester's seedling,) does not prove satisfactory. Conkling is a large, fine yellow peach. Alexandra Noblesse, one of the newer sorts, is an excellent large peach, raised by Mr. Rivers from the old Noblesse. Early Silver, from which the Early Rivers was raised, is a splendid variety, and deserves extensive trial. Magdala, Morning Glory and Atlanta are medium sized, white-fleshed peaches, but not large and attractive enough for market. Atlanta deserves attention from amateurs for its delicate flavor. The Wager peach, with yellow flesh, parting freely from the stone, is said to be valuable for canning.

September 5.—Morris White is still a favorite with orchardists.

September 10.—Jacques' Rareripe, resembling Crawford's Early, may be esteemed in some sections of the country, but it lacks flavor here. Monstrous of Donay, Chevreuse Hative, and Hick's Seedling do not possess sufficient merit to render their cultivation advantageous. Goshawk, raised from Cooledge's Favorite, adds size to the many valuable qualities of its parent. It is certainly very promising.

September 12.—Malta is a desirable peach for the Amateur's garden. The flesh is juicy and melting, and the flavor all that one could desire, but the tree is not productive enough to justify us in commending it for market.

September 15.—Leopold 1st, a Belgian variety, and Prince of Wales, one of Mr. Rivers' seedlings, are deficient in flavor, and we intend to drop them from our list. Cole's Early Red will be treated likewise. Just now

Brevoort is the best peach we have. Its flavor is delicious, and on that account it is certainly entitled to a place in every garden. The tree is only a moderate bearer, which would prevent its culture for market. Old Mixon Free is now in first-rate condition for eating, and deserves to be classed (as it is) among the most valuable of peaches for garden or orchard. In addition to its many other good qualities, it has a rich flavor, which will always make it desirable. Stump the World, although a popular market peach, has not flavor enough to commend it to the attention of amateurs.

September 20.—Susquehannah, a large yellow peach, has a rich, vinous flavor. Hill's Chili has been highly recommended, but I do not see why it should be. The fruit is not large, and the flavor is indifferent. Late Morris White is a variety of Morris White, resembling it in every particular, but ripening ten days later. The Nectarine peach is by all odds the best of its season. It is said to have been raised from a stone of a Dutch nectarine, called Grand Noir, and has a peculiarly delicious flavor. White Melocoton is a large, handsome peach, juicy, melting, and of good quality. Carmine has no flavor, and should therefore be rejected. Red Cheek Melocoton and Mammoth Melocoton are fine, yellow-fleshed peaches. Rymacker resembles Crawford's Late, and does not seem to be any improvement upon it.

September 26.—Van Buren's Golden Dwarf is a large, yellow peach, resembling Crawford's Late; it is a clingstone. The tree is of dwarf habit, and very prolific. Princess of Wales, raised by Mr. Rivers from seed of Pavie de Pomponne, is a beautiful cream-colored peach, melting, and of good flavor; valuable on account of its lateness. Crawford's Late continues to be valued as a late peach. Poole's Large Yellow, ripe at the same time, is a very large yellow peach. The flesh is finer than that of Crawford's late, and from what I have seen of this variety, I think it deserves a good deal of attention. It seems quite an improvement on Crawford's Late. Of its bearing qualities I am not able to judge.

September 27.—Lord Palmerston, another of Mr. Rivers' fine seedlings raised from the Princess of Wales, is very large, skin creamy white, with a pink cheek; flesh fine, juicy and rich, stained with red at the stone. It deserves careful trial, as it promises to be of great value to succeed Crawford's Late. Ward's Late Free is a desirable white-fleshed variety. Its flavor is excellent. Druid Hill, raised in Baltimore, has an exceedingly pleasant flavor. I should not hesitate to rank it among the best of peaches. It has an additional value in ripening so late, and it surpasses Ward's Late Free in flavor. Walburton Admirable is large, juicy and delicious; a first-class peach in every respect. Heath Free is a choice late peach. McClane's White does not equal it in flavor. Carpenter's White is very good, and merits attention.

October 2.—Lady Palmerston will be valuable further south, but it is too late for this locality. This remark applies equally well to Smock Free, Salway, Sample White, De Graw's White, Delaney Heath Cling, Jersey, Comet, and Jones' Seedling. Some of these in such exceptional seasons as 1880, ripen here pretty well.

A few trees did not produce fruit. This will account for the absence of some kinds from the list.

Several varieties of the very early peaches show a disposition to decay, and their value is greatly lessened by this defect. Another year's trial will establish to a certainty the advantages which some sorts possess over others in this respect. As will be seen from these notes, several old peaches which have been neglected of late have been found to possess qualities which will merit attention. We expect next year to fruit the following:—Saunders, Wilder, Musser, Conkling, Mrs. Brett, Bradley, Honeywell, Gov. Garland, etc. Mr. Myers says that Saunders is not quite so large as the Alexander, but has fine color, and is entirely free from rot. The tree is very productive, and ripens its fruit a few days after Alexander. Downing ripens with Alexander and Amsden, and is of medium size and free from rot. Wilder, of the same season as Alexander and Amsden, decays like these varieties.

This collection of peaches has been the most interesting that I have had the pleasure of examining. I hope that other fruit growers will favor us with the results of their experiments, so that we may assist each other in determining which kinds to keep and which to reject.

W. C. BARRY, *Rochester, N.Y.*

CAUSE OF BLACK KNOT.

BY N. HENDRICKZ.

There seems to have been and still to be an opinion that the outgrowth on the plum and cherry trees, commonly called black knot, is of a fungus nature. Let me ask, before proceeding farther, what is the cause of the knot found on oak trees, or wild roses, or blackberry shrubs, or vine leaves, or linden tree leaves, or oak leaves, and in Europe also on beech tree leaves, which afterwards turn out when dry like beads for necklaces, or for other ornaments? All these have insects inside. Having all due respect for persons and their opinions, I dare say there are many who read a great deal, and judge by what they read, so they form their knowledge upon the authority of others; but to study the facts of nature by themselves, and watch the result of an indefatigable investigation into matters of nature is not given to everybody, in fact cannot be done by the most of men, and so we must be very forbearing with their opinions.

When about fifteen years of age I liked to read about insects and study their habits, so what I say is formed by my own experience rather than what I have gleaned from authors, though at that time I

happened to get a book of "God and His Providence in His Insects," describing how wonderfully God has given to every insect the means of progeneration, even with the odds of man's destructive inventions against them, and also other natural enemies, such as birds and insects. Unfortunately the name of the writer has passed out of my memory. I know it is a Belgian writer. He explains many facts in ways which seem plausible, among others this of the black knot. I had already remarked this, and as well as the author came to the conclusion that the cause of it is an insect which instils through a sting an acid into the bark of the tree. This causes the sap to become poisoned, and makes it swell and become of a spongy nature, thus enabling the egg which is laid into the cavity (made by the proboscis of the insect) to hatch out by the heat of the sun. Then it grows and works through the soft spongy matter until it becomes alive, remaining then until it becomes a reddish worm about half an inch long. It ordinarily drops out towards the end of July, digs into the ground and turns into a chrysalis; some come out and some remain, like the potato slugs. The birds kill a good many off. It prefers the plum tree which exudes the gummy matter, thus the cherry tree as well.

You will not find a worm in every outgrowth, because not every egg happens to hatch out, or to remain in the cavity the insect makes. It begins its devastating work early in the spring, many remaining and hiding in the crevices of trees or elsewhere. If the spongy matter be cut off the worm dies, and though we do not burn it, the insects cannot live any longer. As long as there be any of the acid left in the bark it will run up, but if well pared off, the bark will partly grow over it.

There is besides a plum borer, having the same shape as the apple borer, big headed, which runs under the bark into the tree and causes it to die. We have all these pests to contend with. Until an effort be made by disinterested and generous persons, single-handed work will not do, for in a short time cherry and plum trees will have to go. In this neighborhood none care to cut down their trees, or to pare off the evil, so that there is an ample chance for them to multiply. They will afterwards attack the pear and peach trees, and even apple trees. With all our laws it remains where it is, as the thistle law, without sanction. The fire will not destroy all these enemies if man has no will to work to combat them, and he will have to do so to enjoy the

fruits of his labor. Besides, this insect is clannish. If you have a tree infested separated from others by a great distance, it seems to remain there until it has completely destroyed this. If you cut this one down, and have not previously destroyed the insects before they hatched out, they will fly until they find other trees; and the year after you have cut down the infected one all the other trees will be more or less stung. I found the insect to be very much like the curculio, but instead of having black ashy wings, they were brown, and of a hard shelly texture.

NOTE BY THE EDITOR.—Will Mr. Hendrickz favor the readers of the HORTICULTURIST with the name of this insect which he believes to be the cause of the black knot, or give a careful description so that it can be identified.

NOTES ON THE POTATO BEETLE.

· BY PROF. E. N. CLAYPOLE, YELLOW SPRINGS, OHIO.

The present season has been one of unusual extremes here, surpassing all that "the oldest inhabitant" can recall. The thermometer, a better authority than "the oldest inhabitant," confirms the statement. In November it marked 24 deg. below zero; for three successive nights in the Christmas week (Dec. 29, 30, 31,) it reached 18 deg. below zero, and the highest point reached at noon on the 29th was 7. These may not be unusual figures for Canada, yet for southern Ohio they are unexampled. On July 8th the thermometer reached 101, 9th 102, 10th 102, 11th 101, 12th 103 degrees. At 1 p.m. on Aug. 6th it marked 92; at 1.30 68—a fall of 26 degrees in 30 minutes. The rainfall or want of rainfall has been of the same phenomenal nature. A long hot drought in May, another in July, during the hot spell, and another at the beginning of August, which still continues. Few crops can possibly reach an average here this year. Potatoes have been dried up. On my own land the most exposed parts have about one root in three or four, parts less exposed to the sun have all the roots, but the growth is suspended in the late kinds, while the early kinds (Early Ohio especially) have been stimulated by the heat and moisture into a second growth after the rain. The yield is from one-third to one-half what it should be.

The dry weather makes it much easier to deal with the potato beetle, though they are more abundant in dry than in wet seasons; the poison is not washed off by the rain, and consequently it is far more effective.

After numerous experiments on this head I have adopted the following plan. Most of my neighbors either knock off the beetles, or pick them off, or sprinkle the plants with poisoned water. The first two modes are objectionable on account of the number of times they have to be repeated. If you pick your plants clean to-day you must go over them again next week, for others will be hatched. Moreover, the repeated tramping hardens the ground, and makes the labour of raising the potatoes, either with plough, fork or hook, very much greater. The third mode involves the carrying of too much water. I always now use the London purple. It is very much cheaper than Paris green, and being lighter, there is more in a pound. Mixing it with 60 or 80 parts of ashes or fine road dust, by passing it two or three times through a sieve of wire gauze containing about ten meshes in an inch, I can carry enough in a large bucket to poison half an acre of potatoes. I fit a handle to an old pint tin and fill it with the poison; then walking along a row I sprinkle the plant by jarring the handle with a light stick. In this way I can go over an acre in a day. I have grown this year about two acres. The dust should be put on when the air is perfectly still, so that the lighter parts of the mixture which contain most purple shall fall on the leaves. Dew or no dew is of no consequence; when once dusted the leaf will retain the poison until it is washed off by rain. A little flour is said to be effectual in preventing this, but my experience has not confirmed it, and I see little or no use in adding it to the mixture. In the early spring, when the plants are just coming up, it is a good plan to poison slices of potatoes and lay them among the rows. It helps to save the very young plants when they are so small that it is difficult effectually to poison them. Later on, as soon as the young plants appear, I choose a time when the barometer and the sky indicate dry weather for at least a few days, and get the plants thoroughly dusted. This is easy if the potatoes were cut small, because there is only one head. If this is well done, and no rain follows for forty-eight hours, the whole ground will be clear of grubs, and hundreds of beetles will be also found lying about with their legs spread out—a sure sign that they

are dead as door nails, not "playing possum." The crop is now safe until the second crop of beetles appears, which will be nearly a month. The second crop consists of those few that escaped the first poisoning, and others which are contributed by neighbours who do not poison. They are much yellower than the spring brood; these lay their eggs, which hatch in a few days, and the second brood is come. (I have observed, by the way, that when the plants are well poisoned, by far the greater portion of the eggs is laid not on the potato but on weeds and even on the ground. Many of these probably come to nothing, the young grub finding no food close by.) I watch until these are beginning their work in the heart of the plant, and then go over and poison a second time, choosing as before a dry spell. This operation requires rather more time and material than the former, because the plants have tillered out and have several heads. It is economy of time and labor, however, to dust them all, and the labor may be lessened by using a larger dusting tin. It is cheering to go over a patch forty-eight hours afterwards and see it almost cleared of the "thieves;" only a solitary one here and there surviving. This is enough for most potatoes. Only the very late kinds require a third dressing, while for the very early ones a single dressing is sometimes sufficient. This is by far the easiest method of protecting the potato that I have been able to hear of or devise, and it is not expensive, two or three pounds of London purple being enough for an acre of ground. The price of this substance varies greatly in different localities, from 25c. per pound down to 10c., or even less, being asked.

The contrast between my plants and those of my neighbors who try to sprinkle with water, but find it too laborious, is ample testimony to the efficacy of the method I have described. The only point to which I wish to call attention as very important, is the choice of the time for dusting the plants. Choose a dry spell if possible, but always choose the time when the eggs are beginning to hatch, otherwise much of the labor may be thrown away, either by a rain which will wash off the poison, or by the new growth of the plant, which will supply the grubs with food in the earlier stages, and enable them to pass safely. the "dangers of infancy."

THE apple crop this year is light, and our readers would do well to exercise caution in disposing of their surplus stock of winter fruit.

CORRESPONDENCE.

REPORT ON PLANTS RECEIVED FROM THE F. G. A.

A few of the fruit trees, &c., received by me from the Association in its early history perished during transit. Two or three others met with accidents. Clapp's Favorite is a vigorous grower. Set fruit last two years, but it disappeared before maturity. Beurre d'Anjou pear seems less vigorous than the preceding, but has had less care. It has not fruited yet. Grime's Golden Pippin is a strong, vigorous grower, and has fruited two years. The fruit is of fair appearance, and the quality first-rate. I consider it a fine amateur variety. Glass' Seedling plum—vigorous; fruit sets badly; other varieties on all sides bear well. It has a very warm, north-easterly aspect, well protected from cold winds; perhaps its position is too warm. Has anyone else had a like experience? I have not obtained a ripe plum yet. The Downing gooseberry is the best I have of this class. Arnold's Diadem raspberry is a rampant grower, hardy, productive, and delicious. The grains of the berry separate greatly, and the berry crumbles, which is against it for market purposes. But as a garden sort it is first-rate, for with proper care of the canes one can have this excellent berry from the beginning of the raspberry season until the frost kills the foliage. Mr. Arnold's strawberry is also good, but as it has not had full justice at my hands I cannot compare its merits with those of other varieties. The Saunders raspberry received last spring has made a marvellous growth. The question of its vigor on my grounds is settled. I have said nothing of the hardness of the varieties named, for the reason that ours is a locality yet within the precincts of the Ontario fruit belt, and therefore too genial to test any save those varieties already known to be tender.

—L. P. MORSE, *Lowville, Nelson.*

I am glad to notice the praise-worthy efforts of the Directors to please, in the list of plants proposed for choice in the annual gift to the members. I cannot help but think that if the practice is continued of giving some plant annually, that the list may be extended, for it is noticeable in your meetings how much stress is laid on the quality of the soil, the climate, and locality. It is therefore certain that the value of a plant must vary amazingly in different localities. I was much interested in a late number of your serial, especially for the valuable information afforded on grapes. In the February number there is an article giving an account of the failure of the Burnet grape, in spite of the care of a well-known practical grower. My case last summer was identical. In July last I left on a holiday trip to England, the Burnet then thriving as well as one could desire. On my return in the latter part of August my first visit in my garden was to that vine, and I was grieved to find every bunch mildewed and shrivelled, and nearly every leaf excessively scalded. A Salem vine adjoining was also affected, but not much, and I thought perhaps an early frost had caused the mischief. At all events, not seeing the beginning or progress of the mischief, I concluded to say nothing about my Burnet.

RICHARD BAIGENT, *Toronto.*

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THE MIDSUMMER MEETING.

The Midsummer Meeting of the Fruit Growers' Association of Ontario was held at Owen Sound on Wednesday and Thursday, the 24th and 25th of August, 1881. There was a very general attendance of the members from that vicinity, and a goodly number from a distance. The display of fruit was much better than was expected, the crop in that section having been nearly destroyed by the untimely frost which visited the place early in the summer.

President Dempsey called the meeting to order, and after a few words of hearty salutation to the members present, called attention to the first subject, namely: To what insects and what diseases are the plum trees liable in this vicinity?

The replies to this question indicated that the depredations from insects were not serious. The tent caterpillar and other leaf-eating insects were to be found occasionally, but they had not been sufficiently numerous to cause any alarm or make it difficult to keep them in check. The Black-knot was mentioned by nearly every speaker as the most troublesome disease with which they had to contend. It seems to have been more than usually prevalent this year, and to have spread with great rapidity, affecting many of the trees so very seriously that there seems to be no hope of saving them. Mr. John Chisholm stated that it had been more serious in his garden than ever before, and that the only adequate amputation in many instances would be the entire removal and burning of the tree. He thought that the disease thus far had been chiefly confined to the blue plums. Mr. D. R. Dobie spoke of it as being frightful this season, and believed it probable that the dry season favored the spread of black-knot. It had attacked his yellow plums, such as the Coe's Golden Drop and Washington, but was worse on the Jefferson and McLaughlin. Mr. R. J. Doyle thought that trees growing in a

wet subsoil were more subject to black-knot than those in well drained ground, and believed that by thorough underdraining and watchful amputation the disease could be kept in subjection. Several speakers stated that the black-knot was very abundant in some sections upon the wild plum and wild cherry trees, and particularly so on the Manitoulin Islands.

The Secretary stated that some twenty years ago he had noticed the black-knot was very abundant on the wild plum and cherry about Orillia, and from there to Coldwater. It was not now so prevalent in the Niagara District as formerly.

Several members brought plums to the meeting having the gum exuding from the fruit, and otherwise defective specimens, some of them showing the marks of insect depredations, in order that they might be examined by those who were familiar with the work of the curculio, but very careful examination failed to discover any evidence of the presence of the curculio. Plum growers at Owen Sound may congratulate themselves that the curculio has not yet found his way to their plum trees. President Dempsey remarked, in this connection, that in Prince Edward County they had found the rotting of fruit on trees before ripening a much worse evil than the curculio. The curculio could be kept in subjection by jarring the trees and catching the insects, but that no method had yet been discovered of preventing the rotting of the fruit.

The subject of the borer in apple trees was next considered, but the discussion revealed the fact that it had not been troublesome at Owen Sound, but one person having ever seen any in his apple trees.

The discussion on the grapes best adapted to this section of country revealed the fact that quite a number of varieties can be grown and ripened. Mr. Brownlie had grown the Eumelan, Delaware, Massasoit, and Concord. He remarked that the Eumelan succeeds well, and that he had not found it subject to mildew; that the Concord in some few seasons had hardly ripened, and that it was not wise to plant varieties which ripened later than the Concord. Other members had also grown the Champion, Creveling, Clinton, Brighton, Burnet, Hartford Prolific, Northern Muscadine, Rogers Nos. 3, 4, 9, 14, and Salem. It was remarked that at Owen Sound the Burnet did not ripen any earlier than the Concord.

Small fruits generally were grown with good success. Members found no difficulty in growing Raspberries, such as Franconia, Brinckle's Orange, Knevet's Giant, Pride of Hudson, Cuthbert, Turner, &c. English gooseberries were generally subject to mildew, but Downing and Houghton did well. Strawberries were also grown without difficulty. Mr. T. C. Robinson said that the Wilson was the most reliable sort; no other had yet proved to be as profitable for market. He thinks that the Crescent will outcrop the Wilson. President Dempsey manures his strawberries with ashes and bone-dust, applying ten barrels of unleached hard-wood ashes to the acre, and obtains from the Wilson a yield of six thousand quarts to the acre.

The resident members spared no pains to make the visit one of great pleasure to those who came from a distance, kindly taking them to several places of interest in the immediate vicinity. Under their hospitable escort we visited Ingle's Falls, a most picturesque spot of great natural beauty; the gardens of Judge Macpherson, Doctor Cameron, and Mr. Trotter; and the rural homes of Messrs. Glen-Airston, William Roy and J. R. Doyle, at all of which we were most hospitably entertained and found much to interest every lover of horticulture.

At Mr. Doyle's we found most extensive plum orchards, some in full bearing and some more recently planted, the number of plum trees running into the thousands; indeed the largest plum orchard we have ever had the pleasure of seeing. The trees were all vigorous and healthy in their appearance, and many of them well filled with fruit. Although they have no cureulio to trouble them at Owen Sound, they are not wholly exempt from the ills to which the horticulturist is heir, for the frost had so interfered with fruit culture there this season that but few of the plum trees were yielding a crop. Mr. Doyle also shewed the members a barrel, having the staves so arranged as to admit of ventilation of the fruit packed in it. This barrel is specially adapted to the shipping of early ripening apples and pears, which require to be forwarded in hot weather.

After a two days' meeting, in which much very valuable information was elicited, and much enjoyment experienced through the very kind attentions of the horticulturists of Owen Sound, the members from abroad returned homeward, carrying with them most a gratifying

appreciation of the pleasure of their visit, and hoping that it may not be long before they may have the opportunity of again enjoying a meeting with such kind friends.

NEW FRUITS.

We have received from Mr. James Dougall of Windsor some interesting samples of seedling fruits raised by him. Among them is a sample of his new seedling cherry, which has been already noticed in the last volume of the CANADIAN HORTICULTURIST, and is named by him the

WINDSOR.

The specimens received are above medium size, nearly black, flesh very firm, juicy, very agreeable flavor, having that mingling of saccharine and acid which is so refreshing. The stone of the fruit is very small. Mr. Dougall says of it: "Enormously productive; very hardy, being the only Biggareau or heart cherry that had not its fruit buds winter-killed last winter on my grounds; even Dukes were killed."

The remaining samples were of seedling gooseberries which Mr. Dougall has raised.

SEEDLING NO. 1

was raised from seed of an English gooseberry fertilized with the Houghton. The berries sent average larger than those of the Houghton, oblong or oval in shape, color a deep rich green with light veins; flavor is excellent.

SEEDLING NO. 2

is another variety from the same parentage as the foregoing. The berries of this are of about the same size as the Houghton, nearly round in form, and yellowish green in color, and of a rich, pleasant flavor.

SEEDLING NO. 10

was raised from seed of the Houghton fertilized with an English gooseberry. It is oblong or oval in shape, nearly as large as the Downing, and of the same light-green color; flavor very good.

HYBRID SEEDLING NO. 2

is descended from the wild prickly-fruited crossed with an English gooseberry. It is the second remove from the wild. The berries are

oval in form, thinly sprinkled with fine hairs, shewing its descent from the prickly. About the same size as the Houghton; the ground color is a very light straw color, almost white, sprinkled with minute red dots. The flavor is very pleasant.

HYBRID SEEDLING NO. 7

is also descended from the wild prickly fruited crossed with an English variety, and is also the second remove from the wild. These berries are oval in shape, about the size of Smith's Improved. Well covered with short prickly hairs; color dark purplish red; flavor very good.

Mr. Dougall says of the Hybrid Seedlings No's 2 and 7, "I think these will be the parents of a variety that will probably displace all others. They are strong, upright growers. I measured a shoot that grew from the bottom of one of these varieties, it is now four feet nine inches high, (branched) covered with bright brown prickles. It will no doubt reach nearly six feet by the end of the season, though they are not getting fair play, being grown under fruit trees. None of these seedling gooseberries have ever mildewed, though planted in different localities. I have several others, both of the hybrids and crosses between the English and Houghton, but being transplanted last fall, they have but little fruit on them, and that not fully grown. I have a No. 9 hybrid of the same strain as No's 2 and 7; the fruit is much larger than either, smooth, and of a pale red, but not ripe yet, and only four berries left on the bush. The catbird, robin, and Baltimore oriole are very bad on gooseberries here, more especially the oriole. I had to remove my bushes to a place near my house, and cannot save them there."

EFFECT OF THE HEAT AND DROUGHT ON THE RIPENING OF GRAPES.

Every season has something peculiar to itself, and the peculiarities of this season have had a marked effect upon the ripening of grapes. The cool, moist weather of June had the effect of retarding the period of the opening of the blossoms, especially as compared with the season of 1880, and caused the setting fruit to grow very slowly. Hence all of the early ripening varieties came to maturity some ten days, or more, later than they did last year. But the cool and showery weather of June and first part of July was followed by the

extreme heat of the latter part of August and the first days of September, and this had the effect of hastening the ripening of the later varieties of grapes, so that the interval between the earliest and later sorts has been very much shortened, and we have the Concords following in quick succession upon the heels of the Hartford Prolific. The varieties first to ripen in the writer's grounds were the Champion and Moore's Early. There seemed to be no difference in the time of ripening of these two grapes; but there is a great difference in quality and flavor. The Champion is much inferior in this respect to Moore's early, and we predict that in time it will be superseded as an early market sort by the Moore's Early. The Champion possesses the advantage of being a more vigorous grower, and at three years of age the vine will be fully twice as large as that of Moore's Early, and at that age is capable of yielding a much larger quantity of fruit. The two vines, however, appear to be equally hardy and capable of resisting any amount of cold, both ripening their wood early and perfectly. We believe they can both be grown anywhere that any grape will grow, and will both ripen their fruit every year. The Champion has been fruited at Winnipeg, in Manitoba, with complete success, and in a year or so more the Moore's Early will have been tried there also.

Next to these, and with less interval of time than last year between their periods of ripening, came the Massasoit (Rogers No. 3). This is a large red grape, having the flavor that is noticeable in all the Rogers varieties, and while large in berry is usually small in bunch, a good-sized, well-formed bunch being the exception. It is nevertheless a good variety to have in one's garden on account of its time of ripening and the large size of the berries, but is not likely to prove to be a popular market sort on account of its defective clusters.

Hartford Prolific comes next in time of ripening. In the writer's estimation this is a poor grape, but little better than the Champion in quality; yet, hitherto, on account of its early ripening, it has been found to be a profitable market sort. The vine is not as hardy as either of those previously mentioned, and will not be likely to withstand the cold of our severe latitudes. Better grapes, ripening as early, will soon crowd out the Hartford Prolific.

The Hartford Prolific was but fairly ripe when it was discovered that the extreme heat had brought on all at once a host of other sorts

that usually continue to come in one after the other. Wilder, Salem, Agawam, Martha, Brighton and Concord were all in eating condition, and bunches were easily found on all these that were quite ripe. Yet the extreme heat and drought seem to have unfavorably affected the flavor of most of them, the distinguishing characteristics of each variety being less marked than usual. In such a peculiar season it is not easy to assign to each variety its proper position, nor to feel satisfied that the opinions formed at this time will be sustained next year.

The Burnet did not ripen any earlier than the Concord or Salem this year at St. Catharines, and we must wait and note its behavior in coming seasons before we can feel sure where its place really is.

The Vergennes, which is claimed to be an early variety, was not ripe as soon as the Concord, but next season may show a greater difference.

The Delaware is usually ripe some ten days before the Concord, but this season it is not as ripe on this 15th day of September, but will probably come in before the Concord is all gone.

These notes will serve to show the peculiar effect of the season upon the ripening of some of our varieties of grapes, and to put us on our guard against hasty conclusions based merely upon the experience of this season.

PRACTICAL SUGGESTIONS ON TREE PLANTING.

BY P. E. BUCKE, OTTAWA.

Some suggestions on the subject of tree planting in streets may not be out of place. In drawing attention to this subject, we do so for the ornamentation of any city, town or village that may wish to put on a perpetual robe of evergreens, or by planting deciduous trees, that they may, with the annual return of spring, break forth with the cooling shade, which refreshes the pedestrian, gladdens the eye, and ornaments the street.

In the first place, every town should have set apart in its infancy some place for rural recreation, such as a park or square. In some well fenced, well cultivated part of one of these, various forest trees should be sown, say from one-half to one acre of trees in nursery rows. By this means a sufficient number of trees would thus be obtained for

planting many acres, or many miles of trees along the roadside. These rows would of course require to be thinned by removing the trees and replanting them from time to time, but this rather than being a drawback would be an advantage, as the oftener a tree is transplanted the easier and better it grows, and the less danger there is of its dying. The plot of seedlings should be so grown that a cultivator or gang plow could be run between the rows, which should be from three to four feet apart. The rows themselves should be carefully hand-weeded until the trees cast so deep a shade that nothing would grow under them. A nursery of this kind would have many advantages. The town trees obtained from it would be pretty much of a uniform size. They could be easily come at, and handy for planting. They could be put in charge of some elderly residenter, who by selling them to individuals at 10 cents per tree for street planting, and 25 cents for other purposes, (the purchaser to remove them,) they would be made to defray all cost and yield a money revenue to the town, besides making it an attractive place to reside in.

The best varieties of deciduous trees for town decoration would be the horse chestnut, hard and soft maples, black walnut, butternut and the elm. The *acer negundo*, known as the box elder, Manitoba maple, &c., are also very rapid growers, and make pretty ornamental trees.

Some municipal regulations would be required so as to order the planting. Certain streets should be set with certain varieties of trees or combinations of them, such as two maples and an elm alternately, but as a rule different trees for different streets are preferable. The streets might be named after the variety of tree planted in them. The municipality should also regulate the distance apart for planting, and the distance to plant from the centre of the roadbed. Many Canadian towns have the trees set at all distances apart and on any line the resident may choose; thus grown the tree line has the appearance of an ill-set saw. Trees are always beautiful, but planted as indicated they present a very bad effect.

As the plan suggested for raising the trees in a nursery has not been followed in many places, it is still not too late to commence, and it should be borne in mind that all seeds must be sown in well pulverized, rich ground so soon as they ripen; on no account should they be allowed to dry; it is absolutely necessary therefore that the soil should be kept in a continual state of preparation. A hoeing crop

should be taken off the ground the previous season if the land has been lying in sod. Some maples, elms and other trees ripen their seed during the early and middle part of summer, and these should be at once committed to the soil as soon as ripe, and will make a foot of growth the first season. The evergreens are more difficult to manage from seed, and should consequently be obtained from professional nurserymen who make a business of raising them. They should be purchased at not less than two years old, and may be planted out at from one to three feet high. No evergreen should be planted in the autumn, nor should any tree be obtained that has been dug in the fall and heeled-in all winter. They should be dug from the rows in the spring as early as practicable, and immediately planted. No manure should be used about the roots, but a mulch of straw or long coarse manure could be used with good advantage to cover the roots, and this would assist in keeping the weeds from growing. The soil should not be dug with a spade after the trees are planted, but should be kept light and friable on the top with a hooked fork, sometimes called a potato digger.

The preference should be given to home nurseries for young evergreen trees to set in the town plot for future use, and it should be seen that the roots are kept moist from the time the trees are taken up until they are replanted. If they have to be carried far the roots should be puddled in a batter made of clay, and if moved to any considerable distance a further precaution should be taken by covering with old carpet bagging or some such material.

Advantage should be taken of cloudy or drizzling days, and better success will be secured. Evergreens should never be procured from a long distance unless the party ordering is previously satisfied that the man they are to be obtained from is very reliable. Transient tree peddlers should be scrupulously avoided in this matter, as they will try to dispose of trees heeled in all winter, and will care very little as to the moistened state of the roots.

We have heard it stated by practical nurserymen that in some cities it is difficult to get trees to grow in the streets, but we think if a little extra precaution is taken there will not be much difficulty in making anything like good stock to flourish. If the trees require watering, as they will if the weather is very dry after they are set, care should be taken not to put on too much moisture, but the rule

is to err in the other direction. We need hardly say that the Norway spruce, and Austrian and Canadian pines are the trees best adapted to our soil and climate.

One of the greatest difficulties the tree planter has to contend with is the highway cow and the Sunday horse; that is, horses which after working all the week are allowed to rove at large during the day of rest. Canadian stock laws, as a rule, are defective, and there is a general difficulty to getting parties to act in the matter of impounding stray cattle, but no tree is safe while these depredators are at large; and constables should be required to carry out the laws respecting injurious animals in the same way they do to individuals who make themselves a public nuisance.

REPORT ON THE SMALL FRUITS OF 1881.

BY B. GOTT, ARKONA.

I shall confine myself at present to the notice of those fruits of most promising utility that more immediately come under my direct observation, and of their behaviour with us in the present season. I may be excused in adding that small fruit culture, by which is meant the early summer fruits, is becoming more and more deeply interesting and engrossing to a still greater number of our industrious people. Owing to the indefatigable efforts of the Fruit Growers' Association in this direction, and the fine, well-adapted locations and soils of our country, this praise-worthy industry is rapidly spreading amongst us on every side. Some growers are reaping—or rather picking—golden harvests in this promising field. There is little doubt that much of this flattering condition of things among us is very largely due to the well disseminated knowledge of the Fruit Growers' Association of Ontario. Their efforts in this respect are laudable, and command the well-informed throughout the country. May this good influence very largely increase in every county.

As the most popular and acceptable, not to forget the most profitable, of all the small fruits of this climate, I shall beg first to introduce the strawberry, because the public are most anxiously concerned about them, and at the present time anything relating to this savory fruit is most intensely acceptable. I may be excused in omitting a

notice of cranberries, as the culture of these has not so much as been attempted in our county, although we have not very far from our homes very fruitful natural plantations of cranberries, from which has been gathered large quantities of very fine fruit. Next after my notice of strawberries shall follow that of raspberries and blackberries, as being closely related in interest on the list of small fruits in this country. There may follow brief notices of gooseberries and currants, being of considerable interest to our people and also in our markets.

STRAWBERRIES

may be mentioned in the following order, as being those of greatest importance: Sharpless, Captain Jack, Duncan, Glendale, Arnold's Maggie and Bright Ida, Marvin, Col. Cheney and New Dominion. These are all good varieties, and were I not afraid of provoking your smiles, I should like to have added to the list Wilson's Albany and Charles Downing, as still the leading and most profitable varieties.

Crescent Seedling is undoubtedly the coming market and family strawberry, having characteristics to fit it for extended and general cultivation. It is hardy in plant, large and uniform in fruit, of fine flavor, bright, tempting color, and possessed of considerable solidity for transportation. It takes well in the market.

Cumberland Triumph is also a very promising sort, in many points resembling Crescent, but by some thought to be of far finer flavor. It is characterized by great productiveness and uniformity of berry, and well deserves a place.

Windsor Chief is a new, early and fine fruit; large size, good color and fine flavor, but unfortunately too soft for distant shipping.

Sharpless is a very highly puffed up variety—puffed up, probably, more for the purpose of money making than to promote the interests of fruit culture. It has not, in our experience, fulfilled the promises made for it, though we believe it has proved very satisfactory in some localities. With the exceptions of its large size and solidity of berry it has no points to fit it for general favoritism, or to recommend it to the public as either a profitable family or market sort.

Captain Jack is a comparatively new but very promising strawberry of the Wilson type. The plant is hardy, and a good grower and bearer, and the fruit is solid and of fine color and flavor. Would be profitable for market.

Glendale, for a late sort, is the most promising coming strawberry for family and market purposes. It is considered far in advance of Kentucky, and will very likely supersede it for late market purposes.

Duncan is a very promising fruit, possessing very high internal qualities, as its flavor is the highest and most distinct of any sort. It is not very solid, however, and the plant is a poor bearer.

Arnold's Maggie and Bright Ida are new Canadian fruits, originated by Charles Arnold, Paris, Ont., the well known champion of new fruits. Where tested they are found to possess some considerable promise, and are firm in color and flavor; conical and prepossessing.

Marvin is a new American sort that may yet become distinguished among our Canadian lists of fruits. It has not been very widely disseminated as yet, nor can much be said of it.

Col. Cheney is not among the new sorts, strictly speaking, but it is a fine, profitable variety, and worthy of more general introduction. It is of the Sharpless type, but is far ahead of that variety in productiveness. It is increasing in favor as a profitable market sort.

New Dominion is a promising new Canadian strawberry of recent introduction. We have fruited it for one or two years, and think that for family and market purposes it is a decided acquisition. It is hardy in plant and fine in fruit, of the Crescent Seedling type, and of good flavor.

RASPBERRIES.

This fruit is very promising, and is rapidly growing in popular favor; the planting and growing of it is at present occupying much of our attention. I shall proceed to notice it in the following condensed order: Highland Hardy, Brandywine, Turner, Herstine, Naomi, Clarke, Cutlibert, Queen of the Market, Thwack, Ganargua, Saunders No. 56, Mammoth Cluster and Gregg, as the best that have come under my notice.

Highland Hardy is a widely disseminated American variety, and is said to be the earliest ripening sort, but of very poor quality. Its remarkable earliness and solid fruit make it a very desirable variety for market.

Brandywine is early and productive; much resembling Highland Hardy. It is very valuable for early market.

Turner is a recently introduced American fruit of the first promise. The plant is hardy and almost thornless, and a very strong grower;

the fruit is large, firm, and handsome, juicy, sweet and of fine quality. It is thought by growers that this sort is the most promising of all for general cultivation and market purposes.

Herstine is another exceedingly valuable variety, of foreign origin. The plant is a strong, hardy and thrifty grower, and the fruit is large, oblong, firm, and of a beautiful crimson color, and of a fine sub-acid flavor.

Naomi in quality and general character much resembles Herstine, but with us is of larger size,

Clarke is the best raspberry for family use. It is remarkably productive, and nearly hardy. The fruit is large, bright red, conical, and of a very high flavor. This variety is worthy of very extended culture for family use.

Cuthbert, with us is a real acquisition. It is one of the finest red raspberries yet introduced. The plant is hardy and exceedingly productive, and the fruit is large, conical, deep, rich crimson color, and of excellent flavor. This variety may justly be called the coming red raspberry.

Queen of the Market much resembles Cuthbert, not excepting its late ripening quality, but it is said to be hardly so good in flavor as that variety.

Thwack has slightly been tried here, but not to any great extent, but as far as we have gone it is of considerable promise. It is large and firm but not high flavored.

Ganargua.—This is the best of the purple caps in cultivation, and is worthy of far more extended cultivation. The plant is perfectly hardy, and will endure our climate and produce heavy crops of fine fruit. The fruit is of a deep purple color, large and fine flavored. It is readily propagated by the tips, and will thrive and do well in any well drained soil.

Saunders No. 55 has fruited to some extent with us this season. Many are doubtless acquainted with the origin of this new Canadian fruit, in the hands of our esteemed hybridist and brother, William Saunders, London, Ont. It is almost premature to give an opinion regarding its merits, but it is at present believed that it will not come up to the high standard of its competitor, Ganargua, which it very much resembles.

Mammoth Cluster.—Among the blackcaps this fine fruit has long

stood in very high estimation, and to-day it is exceedingly popular. Still it is regarded by some as a little tender in plant, although it stands our cold well.

Gregg.—This is a black competitor of Mammoth cluster, which it very closely resembles ; but we notice some points of difference, viz : It is later in ripening, hangs longer on the bushes, is more even in size, a little higher in flavor, and we get a better price for it. These are good points.

You will perceive that there is nothing remarkably new in this list, but all the varieties named are good and worthy of general cultivation.

GOOSEBERRIES.

We had some fine discussion about this fruit last summer at our meeting in Guelph. The cultivators there have given this fine fruit considerable attention, and appear to have been eminently successful with it. But such on the whole has not been the case with us, especially where its culture has been attempted on a larger scale. In the first place we have no varieties that will keep clean from the dreaded mildew excepting the American sorts, which are all small. Secondly, the dreaded ravages of the gooseberry worm in the fruit, and the destructive saw-fly on the leaf, are more than a match for our meagre supply of patience. At present the varieties in cultivation are mostly confined to Houghton's Seedling, an American sort of great hardiness ; Downing's and Smith's Seedlings are being attempted, but as yet not to any great extent.

CURRANTS.

This fine, popular and easily grown fruit is losing nothing in the estimation of our people, and may be fitly termed "The poor man's fruit," or "The fruit for the million." Though the ravages of the gooseberry saw-fly upon the leaves is still very great, yet large crops are grown and matured. There is still much carelessness displayed in the growth and management of so fine a fruit, but still it most abundantly repays every attention bestowed upon it. The varieties generally planted are not numerous, being mostly Red Dutch and Black English : and really the good sense of the people is here shown, for nothing in our experience has yet been introduced to surpass those old friends. Red Cherry, though a fine, large and handsome fruit, is

yet a poor, unprofitable bearer, as is also La Versailles. Victoria is considered too small in berry, though a good bearer. White Grape is excellent, perhaps the best white variety grown. Black Naples is good and very profitable, though so late in its ripening. Lee's Black Prolific is thought to be hardly so good as Black Naples, and as for Prince of Wales and Bang Up, we have not introduced them sufficiently to give an opinion respecting them.

SUGGESTIONS.

1.—To be successful in growing small fruits, better attention must be given to the preparation of the soil, constant cultivation while growing, provision against the effects of drought, remedies for ravages of insects, &c.

2.—Planters should be more united in their efforts at growing and marketing small fruits; they should not by any means run against one another.

3.—It would be a great assistance to the markets in every fruit growing section in case of a glut, to provide means for curing, canning and preserving fruits. This could best be done by the establishment of drying houses and canning factories, either on the independent or co-operative plan—something like our cheese factories and creameries.

4.—I would suggest that the subject of canning and preserving fruits be more thoroughly discussed at our next winter meeting, and that the results of the Association's deliberations be more widely distributed over the country.

SHEEP AND THE CODLIN MOTH.

We have strongly recommended for many years the practice of turning sheep into apple orchards to destroy the codlin moth. It is true that only a part of the fruit drops and is eaten by the sheep with the worms it contains, and the rest goes with the mature fruit into the market barrel, apple room or cellar. But the dropping apples which the sheep eat include nearly all that are infested which furnish a new brood in the orchard. In other words, what the sheep do not eat are carried off with the gathered apples. This is true to a great extent.

This remedy for the codlin moth has been thoroughly tried of late years by some of our best orchardists with great success. It is best adapted to orchards that are nearly full grown, and in which grass is permitted to grow. It may be applied to younger orchards which are cultivated, provided no crop is planted or sowed, and the sheep are sufficiently fed with grain and mowed grass, or other suitable food, for the fallen apples will

not sustain them. The practice of the best orchardists is to seed their orchards to grass when the trees are large enough to shade most of the ground. The sheep are turned in soon after the blossoming season, and as soon as the grass has a fair start, and are continued till nearly the time to gather the apples. The branches of trees which have low heads and are heavily loaded with fruit, will bend down within reach of the sheep before the end of August, and in this case they must be taken out a little sooner. Troughs for feeding them grain are made by nailing two boards together at the ends. They will eat all the grass they want, and keep the surface closely grazed. They will devour every apple that drops, from the small ones early in summer, to those nearly full-grown two months later. If they do not get enough moisture in these, they will be likely to attack the bark of the trees, unless well supplied with water. Enough for them to drink should therefore be always within reach. If the trunks of the younger trees are coated every few weeks as needed, with a mixture of whale oil soap-suds and sheep manure, the sheep will not be likely to attack the bark.

The amount of enriching which the orchard will need will depend altogether on the previous richness of the land. There are very few places, however, where a top-dressing of manure will not be useful or necessary once in two years, in any orchard seeded to grass. The droppings of the sheep will be a valuable addition—the more so as the quantity of grain or meal is increased. The number of sheep to a given number of trees varies with different owners. Some have kept in their orchards half as many sheep as the number of trees, where they have been planted remotely, and orchard grass or other feed gives them a good supply; and they are careful to make up any deficiency with other food. Others find that all the fallen apples are eaten with only one sheep to six trees. The owner must determine this question himself, by observing the amount of feed required, and the number of sheep to pick up promptly all the dropping apples. The uniform voice of those orchardists who have given this remedy a full and fair trial is, that their crops so treated are but little infested with the codling worm, and that if the remedy is faithfully applied in successive years, the fruit continues to become fairer. The trial of a single season may not effect much; the remedy must be continued unremittingly year after year.

—*Country Gentleman.*

CORRESPONDENCE.

I take pleasure in writing a few lines to let you know how we are getting along in this out-of-the-way place. We have had a very cold summer. On the 7th July the growth on all the apple, pear and cherry trees I planted in the spring was badly killed. I am informed by men that have been lumbering here for over twenty years that they have never seen a season like it before, and I am in hopes we will not see one like it again. I intend planting some more trees next spring if spared. We had plenty of strawberries, huckleberries and raspberries, but the cranberries were frozen on the 16th August,—an unusual occurrence for this district.

—W. WARNOCK, *Blind River, Muskoka.*

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THE OAKS.

Perhaps it will be interesting to the readers of our monthly to refresh their memories, and take a glance once more at the rich profusion displayed in the many varieties of this most useful tree, probably the most useful of all the trees, when we take into consideration the various purposes to which it is applied.

We are indebted to the elder Michaux for the first history of our North American oaks, who under the auspices of the French government explored the Continent from Florida to Hudson's Bay, during the years from 1785 to 1796. Subsequently the younger Michaux in 1807 visited this Continent, and traversing the country, corrected and enlarged his father's work. Mr. Nuttall arrived the same year that the younger Michaux left, and in 1834 crossed the Rocky Mountains and extended these observations to Oregon and Upper California, which were published in 1849. From these sources mainly do we derive our knowledge of the several species of American oaks.

All the oaks are monocious, that is, the flowers are unisexual, the male or pollen-bearing organs appearing in one flower, and the female or pistillate organs in another, but both flowers—those that have the stamens and those bearing the pistil—being borne upon the same tree. Usually after fructification the female blossom advances through its several stages and perfects its fruit during the same season, but in some of the oaks this is not the case. The female flower seems to remain stationary during the whole of the first summer, and develops its fruit during the second season, so that there is an interval of some eighteen months between the first appearance of the flower and the ripening of the fruit. Botanists have made this peculiarity a basis of classification, and have arranged the oaks under two divisions, those of annual fructification, and those of biennial fructification. It is claimed as a matter of observation that those species which are of

annual fructification as a rule have wood of a finer texture, more compact, and therefore more durable than those that are biennial.

We shall not attempt even a short description of all the oaks that have been found in North America, but shall be content with naming those that are among our most useful trees, and deserving of special attention from all those who desire to make plantations of trees that will be valuable in coming years.

WHITE OAK, *quercus alba*. This is probably the most valuable of all, and bears a striking similarity to the European White Oak, *quercus sedunculata*. It will attain under favorable conditions to the height of eighty feet, with a diameter of from six to seven feet; but it varies very much in size according to soil and climate. The leaves of this species are regularly divided into oblong lobes, rounded at the extremity, not pointed. When young they are reddish above and white and downy beneath, and when full grown they are smooth, the color light green on the upper surface and glaucous underneath. In the autumn the leaves change to a bright violet. The acorns are oval, large and sweet, set in rough, shallow, grayish cups, and borne either singly or in pairs. This species belongs to the division of annual fructification, hence the acorns will always be found upon the shoots of the current season. The wood is reddish, and similar to that of the European, and is used for building-frames, mill-dams, posts, frames of coaches, baskets, barrels, and ship-building. Mr. Nuttall says that the roots of this species make beautiful furniture, and that a cabinet and table made from the forked branches, which was then in the possession of Mr. C. J. Wister, in Germantown, near Philadelphia, would vie with the finest known woods, being feathered in the most beautiful manner, and taking a polish equal to that of the finest mahogany.

ROCK CHESTNUT OAK, *quercus pinus monticola*. This species delights in strong soils in abrupt and untillable exposures, and on that account is well adapted for clothing broken hill-sides, and rocky or stony soils. It is found growing on the steep, rocky banks of the Hudson River, and on the shores of Lake Champlain, and yet more abundantly on the Alleghany Mountains in Pennsylvania.

The tree presents a beautiful appearance, being symmetrical in form and luxuriant in foliage. The leaves are five inches long and three broad, oval in form and regularly toothed. When they first open they are covered with a thick down, but when fully expanded are perfectly

smooth. The acorns are brown, oblong-oval, set one-third of their length in a spreading cup covered with loose scales. The bark is used in tanning; the wood is reddish, like that of the White Oak; is used in ship-building, and for fuel is esteemed next to the hickory, and is the best of all our oaks for this purpose. It is one of the annual fructification species.

RED OAK, *quercus rubra*. This species belongs to the biennial section, and is found as far north as the Saskatchewan, and is one of the most common in Canada. It is a tall, wide-spreading tree, often attaining a height of eighty feet, with a diameter of from three to four feet. The leaves are smooth, shining on both sides, large, deeply lacinated, and rounded at the base. In autumn they change to a dull red, afterwards becoming yellow as they fall. The acorns are large, contained in flat cups covered with narrow scales. The wood is reddish, coarse grained, strong, but not durable, and is principally used for staves. The bark is used in tanning, but is not as highly esteemed as that of the Rock Chestnut and Black Oak.

BLACK OAK, *quercus tinctoria*. This species is not only widely distributed, but is very abundant. It is one of our loftiest trees, rising to the height of eighty or ninety feet, and measuring four or five feet in diameter. The leaves are large, deeply lacinated, and divided into four or five lobes. The leaves of the young trees change in autumn to a dull red, while those of the old trees become yellow. The trunk is covered with a deeply furrowed bark, which is black or very dark brown, whence it probably derives its name of Black Oak. The wood is reddish and coarse grained, and is used largely for staves, or as a substitute for white oak for other purposes. From the cellular tissue of this oak is obtained the material known as *quercitron*, used in dyeing wool, silk and paper hangings. This is probably the most valuable of those oaks which belong to the section of biennial fructification, and only second to the white oak.

SWINDLING TREE AGENTS.

BY D. B. HOOVER, ALMIRA.

Several years ago we were greatly pestered in this section with a lot of swindling tree agents. They roamed through the country pulling the wool over the eyes of a good many young farmers, who had about

that time taken up the idea that the growing of fruit would be profitable if good kinds were procured. This gave the agents an opportunity for selling anything for which a grand name could be furnished—a thing that they were not slow to observe and profit by. Anything asked for would at once be placed on the order book, whether they had it in stock or not. Then they invariably had some novelty to exhibit, that “surpasses anything heretofore offered.” One agent took orders for what he termed the Mammoth California Pear, at \$2.00 per tree, but when the trees he furnished us came into bearing they proved to be the Duchesse d’Angouleme, worth about 50 cts. Many other instances of fraud perpetrated by these agents might be recalled, but the above will serve as a fair sample.

Although all tree agents are not alike unreliable, still, as a rule, would it not be much better for us to stop dealing with agents altogether? When we require anything in the nursery line, let us place our orders direct with some well-known and reliable nurseryman, so that we may be assured that we get just what we order, and nothing else. This would ultimately do away with agents entirely, consequently the nurserymen, by saving their salary or commission, would be enabled to furnish stock at cheaper rates.

ORNAMENTAL TREES.

At a meeting of the New York Rural Club, Mr. Josiah Hoopes, president of the Pennsylvania Horticultural Society, read a lengthy and excellent paper on ornamental tree planting, from which the following brief extracts are taken. The Editor of the CANADIAN HORTICULTURIST commends them most earnestly to the careful perusal of every gentleman who plants ornamental trees. It will be necessary to modify these very valuable suggestions sometimes so that they will harmonise with the climate at the place where the planting is to be done. In that part of Ontario lying between the great lakes, Erie and Ontario, and along the shore of Lake Erie up to the line of the Great Western Railway, within the limits of successful peach culture, the trees and shrubs mentioned by Mr. Hoopes will be generally found to thrive well, but to the northward, in limits where the peach will not thrive, we can hardly expect the Aucuba or the Japanese Euonymus will flourish; nor can the Magnolias be relied upon. Some of the

more hardy species are being tried in the Arboretum at the Ontario School of Agriculture, Guelph, but a few years must elapse before any report upon their ability to endure the climate can be made. The same remarks may also be made concerning the Cypress, both deciduous and weeping. The hardiness of the new evergreens mentioned by Mr. Hoopes is not yet established in our climate. The Balsam Fir, Norway Spruce, Austrian, Scotch and White Pines have been fully proven, and can be relied upon everywhere. The beautiful Lawson Cypress is not hardy enough for the climate of the County of Lincoln, but we may hope that the Nootka Sound Cypress, *C. Nutkaensis*, will prove hardy. But the greater part of the plants named by him are hardy, and where they are not, there are species of the same genus in almost every case, well suited to our climate. With a little attention to the subject, as suggested by Mr. Hoopes, the autumn tints might be made a most pleasing feature of our lawns. Will not our readers plant a group or two of these trees and shrubs in their lawns, and show their neighbors what a beautiful autumn picture can be made. Mr. Hoopes says:—

I invariably commence with a stereotyped phrase, "Don't plant large trees in small yards." One of the greatest of all errors, and one that is indulged in by so many of our planters in their horticultural infancy, is that of setting out a first-class tree in a second-class yard. Scarcely a town lot or cemetery enclosure is laid out but this mistake is made, although ignorance in nearly every instance is the excuse, and justly so, too. Taking, for instance the laborer's cottage, with its few square feet of grass in front,—and, by the way, what is more attractive than a well kept sod?—in the place of a Norway spruce or Austrian pine, I would suggest what is termed a dwarf evergreen—one of the smaller forms of *arbor vitæ*, now becoming so popular, or a juniper, with its variety of outline, or perhaps a form of the newer genus *Retinispora*. If the front should have a northern aspect, the best plant for this purpose is either some handsomely variegated variety of *Aucuba* or *Euonymus Japonica*. The newer introductions of these are exceedingly attractive, and a group composed of distinct kinds forms an agreeable feature. To those whose taste for flowers is predominant, I would recommend a circular bed of roses, not planted promiscuously, but in lines or ribbons, each circle a distinct color, all trimmed low, and consequently well branched. If the entire bed

should be of one variety, the effect will also be very fine. For this purpose the China or Bengal class cannot be excelled.

As I am not here to-night to give you a lesson upon landscape gardening, even had I the ability so to do, I shall simply call your attention to a few of the most desirable trees for what might be termed second-class places. For a group of low-growing trees, commend to me always certain species of the Magnolia. The *M. conspicua*, with pure white bloom; *M. soulangeana*, with its white flower, striped and shaded with purple; *M. cordata*, with golden yellow, odorous bloom; and lastly, but very far from least, the beautiful *M. Thompsoniana*, with creamy white fragrant flowers. We have here a group of four trees that cannot be excelled—hardy, beautiful—in foliage and flower, and so entirely free from injurious insects that they seem to combine all the excellencies one could desire.

Another pretty group of small-sized trees may be composed of the *Ilalesia tetraptera*, (or Silver Bell,) *Laburnum*, (or Golden Chain,) and the *Cercis Canadensis*, (Red Bud or Judas tree.) Still another group of the same size can be formed of the *Prunus Padus*, (or European Bird Cherry,) *Rhus cotinus*, (or Purple Mist,) *Chionanthus Virginica*, (or White Wood or Virgilia.)

In a corner of the grounds a closely massed group of the different colored double flowering peaches will be very pleasing when in bloom, and where they will succeed, nothing can excel the numerous varieties of thorns. In the centre of the peaches I would insert a tree of Reid's weeping variety, a graceful drooping tree, and among the thorns plant the weeping variety of it. These have a tendency to remove a certain uniformity of outline prevalent in all such masses.

As we leave the small class of trees and advance to those of larger growth, I unhesitatingly place in the front rank, if not at the very head, the Norway Maple. Seldom do we find its equal in all that pertains to a specimen tree. With ample foliage of the richest shade of green, globular in form, perfectly hardy and healthy in almost every situation, it appears peculiarly adapted to stand alone upon a beautiful lawn. Another, although of a widely different character, is the White Birch, (*Betula alba*), and its delicate cut-leaved variety. The silver-leaved Linden succeeds well everywhere, and is undeniably a beautiful specimen tree, as well as the English cork-barked maple, when branched to the ground. Although of large size, the Sweet Gum, (Liquid amber)

forms one of the most available ornamental trees. Beautiful at all seasons, with its curious corky bark, rich, glossy star-shaped leaves and picturesque form, it is well adapted for creating marked effects; and then in the autumn its brilliant crimson hue is remarkably attractive. Either for grouping or as single specimens, the genus *Fagus* or Beech supplies us with a charming set of trees. Among the most striking in character I would place the fern-leaved and purple-leaved as especially fine. The cut-leaved Alder and the newer variety *asplenifolia* I consider very desirable for particular localities.

There are very many other trees of beautiful form that are unfortunately not adapted for general planting. In the neighborhood of Philadelphia we cannot use the elms, because the leaves are often perforated by insects; nor the ash, on account of the borers; the mountain ash meets with the same fate, and the thorns are destroyed by a fungus; the horse chestnuts become disfigured by midsummer, and so we have to rely on other trees. But where this list will succeed, as they evidently do in central New York, my advice is to use them all freely. There are four genera belonging to the great natural order *Coniferae*, that are furnished with deciduous leaves and tall spiral tops, all well adapted for the centre or background of groups—the Larch family, of which the European species is preferable; the *Salisburia*, or Japan Ginko, with curious yet pretty fan-shaped foliage; the *Deciduous Cypress*, with light feathery leaves; and the *Glyptostrobus*, or Weeping Cypress, having unusually graceful foliage and pendent branchlets. Every place should have at least one drooping tree, as much for its intrinsic beauty as for the effect it produces when grown near other forms. For this purpose the Weeping Beech possesses an individuality peculiarly its own. Not so pretentious perhaps as the preceding, but with a graceful drooping of the more slender branches, the Weeping Linden stands next in the list. Where they will flourish, the Weeping Elms and Weeping Mountain Ash are very handsome; and the old fashioned Weeping Willow, especially when in the vicinity of water, is often a valuable assistant for creating a beautiful picture.

For small-sized weepers I would suggest the following, all of which are useful, and in fact indispensable to the landscape gardener: The thorn, grandidentata poplar, Kilmarnock willow, dwarf cherry, sophora and beech. The drooping varieties of the common ash are stiff and

formal in outline, yet often attractive from their very oddity. A feature very often overlooked in American gardens is the massing of trees that are beautiful in the autumn. Most places can be improved by a little group of these brightly-tinted species, and for this purpose I would name for the back-ground the scarlet oak (*Quercus coccinea*,) dazzling in its scarlet dress; the sour gum (*Nyssa Multiflora*), with the deepest shade of crimson; the red maple (*Acer rubrum*), gay with yellow, red and orange, and a sassafras (*S. officinale*), with golden yellow leaves. To the front I would place a white flowering dogwood (*Cornus Florida*,) with its vivid shade of red; one or two common sumacs (*Rhus glabra*), as bright as the petals of a crimson peony, with a few vines of the green brier (*smilax rotundifolia*), of golden hue, and *ampelopsis quinquefolia*, dyed with crimson, clambering over the whole. It is needless to add that the effect of such a blending of colors cannot be overrated. In leaving the deciduous trees, I would merely call your attention to the neglected family of oaks, although beyond the limits of such places as we are discussing to-night. For very large lawns no genus in the flora of the world can exceed their majesty of form, their picturesqueness of outline, nor their value for every purpose appertaining to the landscape art.

We now arrive at the Evergreens, but as my time has nearly expired, I will hurriedly particularize a few of the most valuable for the majority of our country places, all of which will undoubtedly succeed in this vicinity. In the spruce family, as not only the first in the genus, but among all cone-bearing trees, the Norway Spruce is fully intitled to consideration before any other. You all know it well, and knowing it have nothing to say against it. It is a tree at once appropriate in all situations and for every purpose; hardly everywhere, and exceptionally beautiful.

More formal in outline, but remarkably pleasing in color, the white spruce stands next, and the hemlock, with its charming drooping branches, curving in even circles to the ground, must never be neglected. In particular localities and exposures, the *Abies Smithiana*, *A. Douglasii*, and *A. Menziesii* are among our handsome kinds. In silver firs, the *A. Nordmanniana* is without doubt the best hardy species known to us at present—always beautiful and healthy, we cannot well dispense with its presence. Almost as valuable, the *A. Pichta* ranks next. With varying success, although generally firm,

I would name the rare *A. amabilis*, *A. grandis*, *A. nobilis*, and *A. Cephalonica*, while common balsam fir and European silver fir are unexceptionable in many grounds. The pines must be used sparingly, as they are rather coarse for close proximity to the dwelling. Among well-tested kinds, the Austrian, Cembrian, White, Lambert's, and Scotch are all hardy and deservedly admired, and where the *P. excelsa* is free from blight, I would add it to the list. A few of the newer species, such as *P. ponderosa* and *P. Massoniana* are promising to be valuable, but they require a more extended trial. The Cedar of Lebanon must not be forgotten, not alone for the many reminiscences connected with it by the sacred writers, but for its individual beauty on the lawn. The *Libocedrus decurrens*, *Cupressus Lawsoniana*, and *C. Nutkaensis*, notwithstanding they are almost unknown to cultivators, are supassing our most sanguine expectations where they have been tested. Our American *Arbor Vitæ*, as well as the Siberian variety, are so well known and appreciated that it seems unnecessary to urge their claim to public notice. Low-growing conifers are of such vast importance to the landscape gardener in creating dense evergreen masses, that of later years our arboriculturists have been eagerly gathering from every available source, all which have proven distinct.

PLANTS TO BE DISTRIBUTED AS PREMIUMS IN SPRING OF 1882.

The Directors have decided to give the members the privilege of selecting from the following articles that one which they prefer to have sent them next spring; namely, 1st, a plant of the *Spirea prunifolia*, or, 2nd, a plant of Lee's Prolific Black Currant, or, 3rd, three bulbs of the *Gladiolus*, or, 4th, a Moore's Early grape-vine. The members, when they send in their annual membership fee, will please signify to the Secretary which of the four is their choice.

The *Spirea prunifolia* is one of our most handsome flowering shrubs. It is remarkably free from insects, healthy and hardy, never becoming very large, and easily kept in any desired form. The leaves in summer are a rich glossy green, but in autumn they change to various tints of crimson and scarlet, making a very attractive and pleasing object on the lawn. In early spring, before the leaves are expanded,

the branches are literally wreathed with white double flowers, most perfect in form, and beautiful in their whiteness. Any of our members desiring an elegantly neat flowering shrub for the lawn cannot fail to be pleased with this.

Lee's Prolific Currant is one of the best, if not the best, of all the black currants. The currants are large in size, and borne in profuse clusters of the usual form.

Three *Gladiolus*. These are strictly flowering corms, though usually called bulbs. They are very showy late flowering plants, the flowers being prettily shaded with crimson, or pink, or carmine; these are borne on long spikes, those nearest the base opening first, progressing upwards until all are expanded. The spikes of bloom are much used for table decoration, because they can be cut when the blooms at the base have expanded, and put in water in the house where the remaining flowers will gradually open until all have bloomed. The corms should be kept in a cool place free from frost during winter, and not planted in the garden until danger from frosts has passed; then they may be planted in the open border, where they should remain until frosty weather in the fall admonishes us to take them up, and store them away for the winter. They can be kept where potatoes are stored, or any cool place where it does not freeze. Three of these corms will be sent to any one choosing the *Gladiolus*.

Moore's Early Grape. This is the best very early black grape. In size of bunch and berry it resembles the Concord, and is much like it in flavor. Of all the many varieties fruiting in the Editor's grounds this is the first to ripen, and is much better than Champion or Hartford Prolific. The vine is remarkably healthy and hardy, with tough leathery foliage, ripening its wood very early in the season, which qualities make it remarkably well suited to our climate. It is a variety well worthy of trial, especially by the members who reside in those parts of the Province where the summers are short, and the season not long enough to ripen the Concord fully every year. They will find it a most desirable acquisition.

Each member will receive the article chosen by him through the mail, securely packed in damp moss and wrapped in oiled paper. The Directors have found that this is the only way in which plants can be distributed with certainty and dispatch.

CORRESPONDENCE.

ROTTING OF TOMATOES.

Will you or some of your correspondents inform the readers of the *HORTICULTURIST* what caused the rot in tomatoes this year and last. In this section more than half the crop was thus destroyed. Is it caused by insects, or is it atmospheric? I see by the papers that the disease, or whatever it may be called, is not an endemic, but an epidemic, extending over a large area in Ontario. It has proved the most destructive where planted on rich land. Before the fruit has attained its full size it begins at the flower end with a black spot, a kind of gangrene, and spreads very rapidly, making the fruit useless.

Can a peach tree be successfully grown by grafting on a plum stock? Will it be as hardy, and stand the winter's frost, and bear fruit, or will it be sterile? Hoping to see an answer to these queries in your next issue,
I am, dear sir, yours, &c. THOS. COATES.

The peach is often budded on plum stocks, and is fully as hardy and productive as when grown on the peach stock. The Editor has not any experience in the rotting of tomatoes. Can any of our readers answer?

DEAR SIR:—I send herewith one dollar to renew my subscription. I consider the *HORTICULTURIST* well worth the money, and look out for it every month with great interest. Saunders' Hybrid Raspberry did well. It made five or six canes of about five feet each in length. I use a liquid manure prepared from the parings of horses' hoofs steeped in water for a week before using. When the liquid is drained off add more water. In this way a bushel of parings to a barrel of water will produce an abundance of manure for vines, small fruits and plants for six months. I used it with good success. This manure is excellent for plants in pots, but is objectionable on account of the smell it produces in a house. I think that a solution of copperas sparingly used would cure the smell; and I learn that fuchsias are very fond of copperas.—JAMES STEPHEN, *Toronto*.

The Downing gooseberry and Salem grape both did well with me. The Swayze Pomm eGrise apple tree was as dry as an old stick when received; couldn't bring life into it. Flemish Beauty pear did well. The Glass Seedling Plum I did not get until the plum blossoms had all fallen off my trees. It was well packed, and several shoots had made a growth of three or four inches long, the shoots quite white. I nursed it very carefully, but it did not do well. Had it planted in a nursery row with others, and the deep snow of '78 and '79 broke it off close to the ground, so that was the last of it. The Diadem Raspberry did pretty well, but in moving from the town to my farm it got lost by some means. The strawberries were not of much account. The Burnet grape did well. The Ontario apple was a splendid tree, received in good condition, and has made great growth. Saunders' raspberries did very well, especially No. 50.—WALTER HICK, *Goderich*.

I am glad to find that the Directors have decided to distribute among the members a grape vine. My garden being of very limited dimensions, I have to make the most of it. I should therefore prefer a vine for 1882, and if allowed a choice, would like to try a plant of the Niagara grape, or failing that, one of the Prentiss. The CANADIAN HORTICULTURIST has been a source of profit and pleasure to me, and I sincerely hope the Directors will continue its publication. As regards the trees, &c., received from the Association, I have to report that Glass' Seedling Plum bore a sprinkling of nice, handsome fruit, after the style of the Orleans, but darker in color. My crop of fruit was very much lessened by the loss of nearly all the fruit buds, pecked out by the sparrows in the early part of the year. I hope to circumvent master impudence next season, by coating the buds with a composition distasteful to the birds, whilst beneficial to the tree. I cannot say much for the Diadem raspberry. It is very hardy and vigorous, but the fruit on my soil (stiff clay) is small and ill shaped; quite the reverse to the strawberry Arnold's Pride, No. 23. I can speak in the highest terms of this berry, which I find very productive, vigorous, of good flavor and perfectly hardy, many of the plants having been left uncovered during the last winter and came out in the spring uninjured. The Burnet grape produced a crop of between thirty and forty bunches of very nice fruit. I find the vine quite hardy, remaining uncovered during the winter. I nearly lost this vine when first received from the nurseries. For over a month it made no progress, and was evidently dying. Fancying something was wrong at the roots I dug it up and carefully washed the roots in warm soap-suds, then replanted, and daily sponged the stem, &c., until I had the pleasure of seeing my trouble rewarded by its breaking into bud from just beneath the soil. Since then it has made shoots twelve feet long, well set with fine prominent fruit buds. I had a similar trouble with the Ontario apple tree, which when received appeared dried up almost to a stick. I placed it in a barrel of rain water for a day, then after taking off two scions, (both of which I grafted and they grew,) I planted, and every evening washed the stem and branches with sun-warmed water. It grew and is now a promising tree, with several well-developed fruit spurs. So you see, Mr. Editor, that with a little care and trouble I had the satisfaction of saving both plants. Whereas, had I treated them as most of my neighbors do, by simply digging a hole and thrusting in the roots, and then leaving them to take care of themselves, I should very likely have lost both.—WM. J. MANSELL.

The strawberry plants were all killed off the first winter. The raspberries have done very well, the fruit being firm and pleasant, and the canes perfectly hardy, standing all winter without any protection. The Ontario apple promises to make a fine tree. I am cutting the head well back, keeping it low, as it is planted on a high piece of ground, and is exposed to every wind that blows. I leave the Burnet grape vine to the last, and will try to give it its just due. I consider it one of the best out-door grapes yet introduced. It is perfectly hardy, as it is left tied upon the trellis all winter without any protection. It is a strong, vigorous grower, giving as much labor to keep it pinched back as Rogers No. 15, which is planted

alongside. It is a very prolific bearer, all the bearing parts of the canes being covered with fine bunches of large oblong berries, the flavor of which is A 1. Sharp, sweet, and spicy ; far ahead of the other standard varieties I have. Some practical men who have tasted it, say it is equal to the Black Hamburg, which I believe is one of its parents. It is a fine keeper ; at Christmas the bunches were as plump and fresh as when cut from the vines, and the flavor as good as when fresh. The first year it bore fruit it was ripe a week or ten days before the Concord ; this year it ripened with the Concord, being very much troubled with the thrip, which no doubt retarded its ripening. It reflects credit on the Association for introducing it, and on Mr. Dempsey as the originator. My soil is heavy clay, underdrained, and owing to the exposed situation I trim and trellis my vines low, keeping them well pruned back.—THOS. HEDLEY.

REPORT ON BURNET GRAPE.

The Burnet grape vine I received from the Association has grown very strong. It bore twelve large bunches of good flavored fruit this season. Soil, heavy clay ; southern aspect, against concrete wall.

—W. WISE, *Clinton*.

BURNET GRAPE.

The Burnet Grape had several fine bunches of grapes on it last year. It fruits nicely down here, and stands the weather well.

D. V. BEACOCK, *Brockville*.

Last year was a terror here. All my plum and peach trees are dead, and about 1,000 pear trees are gone, and the rest are sickly looking. Apple trees are also dying, especially R. I. Greening. I lost about 2,000 trees, 8, 9, 10, 11, and 12 years old.—W. MCKENZIE ROSS, *Chatham*.

Antioch College, Yellowsprings, Ohio.

Will you allow me to make a few remarks on Mr. Saunders' paper. In speaking of the codlin moth, (*Carpocapsa pomonella*), he says that no one to his knowledge has ever taken it at sugar. Now it is a little singular that this year, when the codlin moth is much scarcer than usual, two specimens out of the three that I have seen were caught at sugar in a dish hung on my apple tree. I am inclined to attribute the scarcity of the insect this year to our cold winter and the continuance of snow on the ground, which has driven the woodpecker to search more closely for food. The second point I wish to notice is probably an effect of climate, but here the egg of the moth is not laid until some time after the blossom of the apple is over. My trees were in full flower during the first week in May. I took the first codlin moth on June 2nd, and then on June 13th. On this latter day I saw the first signs of their presence in the fruit. Careful search had previously failed to detect them. Then nearly six weeks passed between the fall of the blossom and the hatching of the caterpillar.

E. W. CLAYPOLE.

REPORT ON FRUITS.

I have two Wagener apple trees, which I planted on clay soil twenty four years ago; but they do not grow as fast as some other kinds. They are good trees to bear, however; the fruit is of fair size, keeping till May. I think they are one of the best varieties of winter apples we have. Grimes' Golden Pippin is growing well; the fruit is of good size and superior flavor. They are ripe in November; a good many fall off before they are fully ripe. They are not likely to be very valuable in this section.

My Burnet grape bore a few small bunches last summer. The berries are not as large as the Concord, and did not ripen any earlier.

SANDFORD WHITE, *Tilsonburg*.

CHOICE SHRUBS.

THE MOONSEED.—Few realize the attractions of the Moonseed, *Menispermum canadense*, but why I cannot say. It is hardy and should be well known, for it is an old plant of excellent qualities. The way in which the vigorous, broad, heart-shaped leaves fold closely over each other is very curious as well as ornamental. It is, moreover, a very strong grower, easily propagated, and therefore cheap. It is, however, only another instance of a good old plant apparently doomed to neglect.

THE CUT-LEAVED SUMACH.—The changing colors of autumn again remind us of the peculiar attractions of the cut-leaved sumach (*Rhus glabra laciniata*). Many roadsides glow at this season with the common sumach, but the same deep color on the cut-leaved variety is combined with the most delicate and lace-like divisions of the leaf. The very irregularity of the sumach has such special charms that pruning fails to improve even the cut-leaved variety, unless it be to curtail the dimensions of some overgrown specimen. All the sumachs—*R. glabra laciniata*, as well as the beautiful new Chinese *R. osbecki*—belong to the outskirts or points of large shrub groups, where their peculiar form and coloring may be fully evident. Color and irregular form alike make them prominent in such positions. If it is desirable to form them into masses—and it is often very desirable—they should be planted entirely by themselves on some hillside or slope. The way they are gathered together in their favorite haunts suggests the proper manner of arranging them. It is a mistake, however, to think that any soil will suit the different varieties of sumach simply because when wild they grow freely and abundantly. They like good, loamy soil, and certainly in all ways deserve to have their likings considered, for as lawn plants in the fall of the year few shrubs excel them.—S. PARSONS, in *Country Gent*.

A FEW WORDS ABOUT THE CLEMATIS.

It is hardly fair to give so lovely a plant as the Clematis a mere passing mention. The tender, faint, silvery white of *C. Lucy Lemoine*, the broad gleaming white of *C. Gloire de St. Julianne* and *Henryii*, and the rich royal purple of *C. Thomas Moore*, *Prince of Wales*, *patens* or *azurea*, and *Jackmanni*, the latter almost the best of all, come to us as a surprise; almost a miracle as we first behold their tender petals resting on masses of shining

leaves. But I want to note two or three important points in their culture, whereby increased and prolonged pleasure may be derived from their peculiar beauty. Clematises, as a rule, grow thick and low, when compared with other climbers. They should, therefore, be trained either to coarse wire netting, set against wall or house, or on a pole or dead tree with parts of the branches left unlopped. Thus managed, clematises display effectively their rich colors and delicate grace. Single wires or strings fastened vertically are frequently used as supports for clematis vines, but such a system of training fails to display satisfactorily the peculiar beauty of the leaves.

But some one may say that clematises, with all their surprising beauty, are very unsatisfactory because they last so short a time. The answer to this is—cut off your clematises just below the flowers, as soon as they have faded, and you will find to your delight that in August and September all kinds in any way related to those mentioned above will bloom freely a second time. Do not forget, furthermore, the species *C. virginica*, small, white and sweet-scented. It is not related to the above list, but is induced to bloom in a like manner a second time by similar pruning. People are becoming very enthusiastic about clematises now-a-days, but they have yet to learn half the attractive ways by which their charms may be displayed. For instance, they may be trained into a thick carpet, sprinkled with flowers, or in the form of a border. They may be made to cluster deliciously in the upper curves of a gothic doorway or window, or they may be allowed to wander in wild graceful abandon over heaps of rocks or roots; indeed, I can never fancy the distinctly formal mounds, columns and what-not of clematis that the books recommend in their latest devised systems of training. Very useful clematises for creeping over rocks and roots are the species *C. apafolia* and *C. grahamii*, one yellow, the other white, and both possessed of the habit—almost peculiar to themselves—of blooming in August in the most profuse fashion, and therefore needing no summer pruning. These clematises grow very rapidly and thickly, and are in every way unsurpassed for covering rock-work with foliage and flowers.

A rare and most curious clematis has come recently into the hands of the planter under the name of *Clematis coccinea*. The flower is unlike the ordinary form of clematis, and it is not only curious, but very beautiful. It consists of a solid, fleshy mass less than two inches long, moulded into the similitude of a diminutive antique vase with a very small mouth. The color is deep scarlet, which flushes the entire surface of the flower, while the foliage is much like that of an ordinary clematis. It blooms commonly in July. Altogether it is one of the most interesting plants I have seen in a long time, even setting aside its unquestionable rarity. Surely I am doing no plant injustice when I express regret that such gems of hardy nature receive so little attention compared with that bestowed on the different forms of coleus and geranium. Furthermore, in thus speaking of clematis coccinea, I would offer the same plea for all clematises. They are in many instances difficult to propagate, but always choice and lovely, and very frequently rare.—S. PARSONS, Jr., in *Country Gentleman*.

SELECT FUCHSIAS.

Fuchsias are among the prettiest of our soft wooded, free-blooming plants. They are of the easiest culture, requiring during the summer a partially shaded position, with moderately enriched soil and plenty of water during their season of growth. Some of the varieties are also well adapted for bedding purposes. Such varieties as possess good habit and good vigorous growth, and also free blooming qualities, are the most suitable for this purpose. I give below the best of a large collection, including all the newer kinds recently introduced :

Avalanche (Smiths).—Of a straggling growth, the flowers are of the largest size, double, corolla white.

Avalanche (Henderson's).—The habit of this variety is neat and compact, although a strong grower; the foliage is of light yellow, the flowers very large, the sepals crimson, corolla purple. In the western cities this kind is grown more extensively for retailing than is any other. Its habit of blooming when quite small makes it suitable for this purpose. It is without doubt the best dark double fuchsia, all qualities considered, in cultivation.

Black Prince.—A distinct variety; tubes and sepals a waxy carmine; pale pink corolla, margined with rose.

Elm City.—An old double fuchsia of good habit; tube and sepals bright scarlet; corolla crimson.

Queen of Whites.—Tube and sepals bright red; pure white single corolla; good habit.

Lord Byron.—One of the finest dark single fuchsias of recent introduction, having a fine branching habit, blooming when quite small; tube and sepals bright crimson; corolla large, open; of the darkest purple, almost black.

Mrs. H. Cannell.—Considerable excitement has been manifested among horticulturists on both sides of the Atlantic regarding the merits of this fuchsia. It is undoubtedly one of the finest double white varieties yet introduced. The flowers are of large size, and are produced in great abundance on well-shaped plants.

Sunray.—Some plants of this fuchsia in our greenhouses just now have leaves of the finest markings, and of the richest colors, equalling the finest tricolor geraniums, and not much inferior to the fine-leaved caladiums. The flowers have scarlet sepals with purple corollas.

Warrior Queen.—A good single, crimson sepals, corolla violet.

The following are the best winter-blooming kinds :—

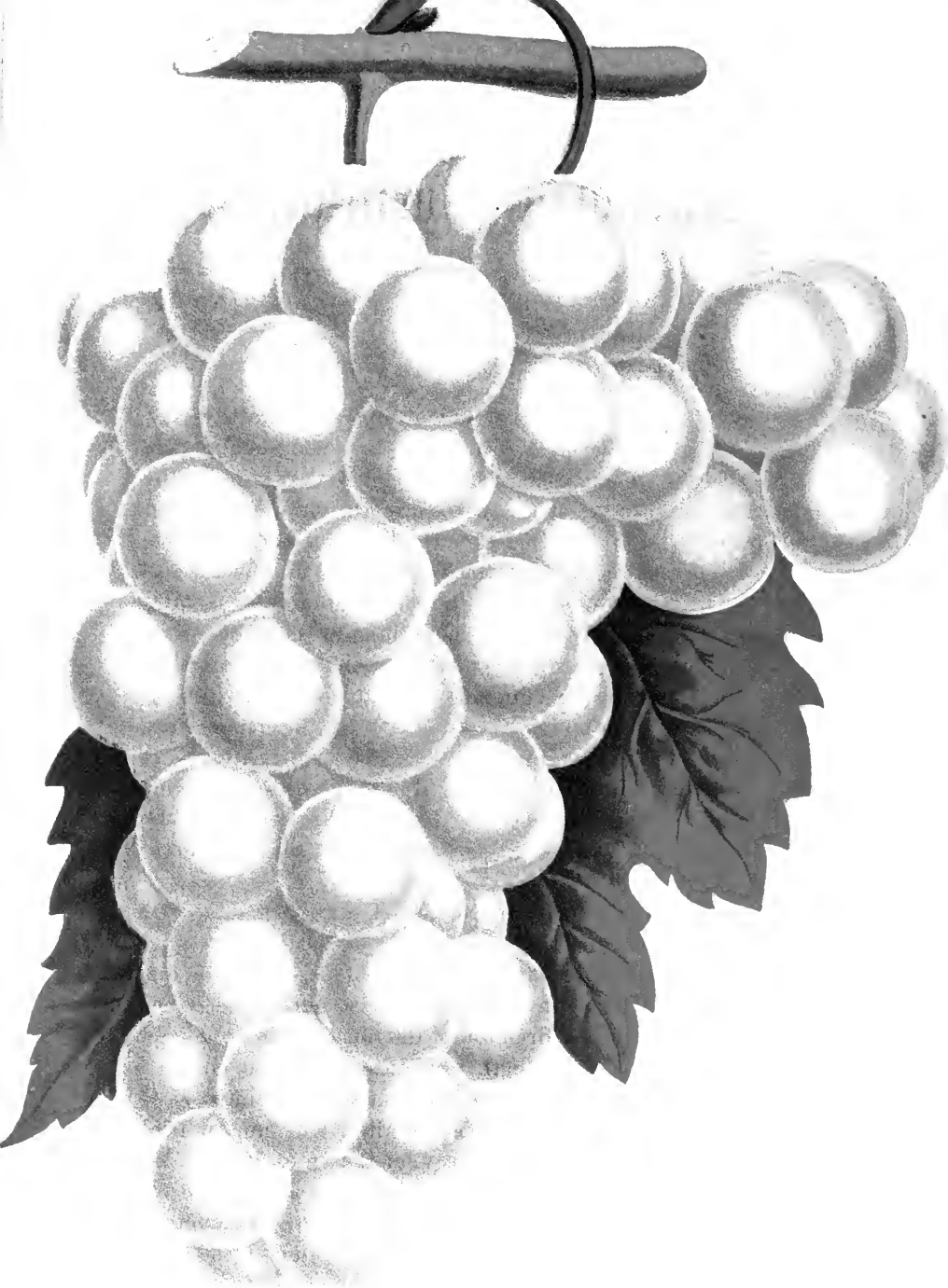
Speciosa.—Sepals flesh-colored; corolla scarlet.

Mrs. Marshall.—Pure white tube and sepals; rosy-pink corolla.

Bianca marginata.—The sepals of this one are white, corolla crimson.

Earl of Beaconsfield.—Of recent introduction, but an excellent one for winter blooming. The blooms are often over three inches long, the tube and sepals a light rosy carmine, corolla a deeper carmine. A splendid flower for keeping a long time after being cut, being of fine substance. The double-flowering kinds are not very suitable for winter blooming, but can be had to bloom early in the spring by propagating early in the fall, and growing on slowly during winter.—M. MILTON, in *Country Gentleman*.

77
176



⇒POCKLINGTON GRAPE.⇐

The Canadian Horticulturist.

VOL. IV.]

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[No. 12.

THE POCKLINGTON GRAPE.

So very various have been the opinions expressed with regard to this grape, that until now the writer confesses to considerable perplexity with regard to its qualities, having heretofore only seen it as it was exhibited some years ago at the meeting of the Am. Pomological Society in Rochester, N.Y. At that time the fruit was not fully ripe, so that no just judgment could be formed concerning it; and the impression left on the mind would not be the most favorable, for exhibitors are not in the habit of presenting a new thing to the public in an imperfect condition. It was with much satisfaction that we embraced an opportunity of visiting the grounds of Mr. John Charlton, in Rochester, N. Y., about the middle (14th) of October, where there are a number of vines of the Pocklington, and which at that time were well filled with fruit. This visit gave us an opportunity of observing the condition of the foliage, the bearing habit of the vines, and the quality of the fruit, as it appeared not upon one vine merely, but upon some twenty vines or more.

As to the foliage and general appearance of the vines, there was evidence of strong, robust constitution; a thick and leathery leaf that would endure well the trying changes of temperature, of drouth, and moisture, to which vegetation in our climate is so subject; a strong cane, not as stout as that of the Brighton of the same age, but vigorous, well ripened, and of sufficient length to indicate that the vine is a strong, healthy grower, and at the same time not so long jointed as to need great breadth of space for favorable results. The crop of fruit was abundant, quite enough one would say for the vines, though Mr. Charlton stated that a considerable quantity had been already cut off, so there is no reason to fear that the vine is not abundantly productive.

The fruit is showy, commanding attention by reason of the large size of the berries and good size of bunch, and when fully ripe is of a

light yellow color in the berries exposed to the light, changing to a greenish shade on the other parts of the cluster. The attractive appearance of the fruit will doubtless give it a prominent position as a market variety. In flavor it compares favorably with other varieties which show the characteristics of the *Labrusca* family; it is sweet, rich, and possessing the peculiar musky, or, as it is sometimes called, "foxy" flavor, which marks the Hartford Prolific, Diana, and to some extent is also present in the Concord. The berries were hanging well to the cluster on the vines, giving no evidence there of any tendency to drop from the bunch when ripe, like the Hartford Prolific.

The colored lithograph which embellishes this number, is presented to our readers by Messrs. Morris, Stone & Wellington, who have done so much in the way of introducing this grape to Canadian fruit growers. In size, both of bunch and berry, it is a good representation of the fruit, and the color is probably as accurate as can well be produced in chromo-lithography. We did not see any bunches where the berries were as uniformly yellow as in the plate, more or less of them having a greenish tint on the shaded side. It is probable that in the colder parts of the Province that tint will be found to predominate even when the grape is ripe.

We look upon this grape as worthy of trial in all those sections at least where the Concord will ripen. To those who are fond of the musky flavor of our *Labrusca* grapes, combined with much sweetness, large size, and showy appearance, this variety will be a welcome addition.

ANOTHER SEEDLING GRAPE.

We received from Mr. C. H. Biggar, of Drummondville, samples of a new seedling grape raised by him—parentage unknown. The grapes were received about the middle of October, and as stated in the letter accompanying them, were over-ripe. In size they were a little larger than the Delaware, and deeper in color, but in many respects resembling the Delaware in appearance. We were favorably impressed with the quality of this grape, and hope that we may see it again another season when in its best condition. Mr. Biggar states that it was in its prime about the 24th September, and that the vine gives promise of being a very heavy cropper.

GRAPE GROWING IN THE OTTAWA VALLEY.

BY P. E. BUCKE, OTTAWA.

The vine industry, which had no existence in this country twenty years ago, and has now taken such a hold on our brethren of Western Ontario, has only within quite a recent period extended itself so far east as this locality. It was confidently believed for a long time that if many kinds of the apple would not successfully flourish here, it was useless attempting this more tropical production of one of nature's choicest gifts. The fact was either lost sight of, or else not understood, that whilst the peach, the plum, the pear, and the apple grew on trees with stiff stems, the grape was produced on a pliant limber vine, and that this makes all the difference in the cultivation of the one and the other. It is found that the sun heat of the Ottawa valley during the summer months is quite equal, if not superior, to the more western peninsula; and that by securing a southern exposure there is not the slightest difficulty in ripening not only the ordinary hybrid outdoor varieties of grapes, but also some of those native to France, Spain and Italy, and even others which it has hitherto been thought would only ripen with favorable circumstances under glass. One of the secrets of vine growing in localities where seasons are rather short, is the securing of the vine from severe weather during winter, and the keeping of the sap vessels from freezing and thawing during spring by protecting the plants with a few inches of soil before the ground closes up in autumn, which covering should not be removed until the spring is fairly open; the early maturity of the vine-wood, which ripens with its fruits, and the season at which it begins to put forth its leaves in the spring, gives the cultivator every opportunity to treat the vine successfully in these respects.

The vine is one of the most docile of plants—it can be trained and pruned in any direction; it may be grown tied to a stake or spread out like a fan, care being taken that all the main pruning be done in the autumn. No cutting of any kind must be attempted in the spring, before the first leaves are open, with the exception of rubbing off the duplicate buds which burst along the previous year's growth. Summer pinching and pruning may be freely indulged in, and neither too much wood or too heavy a crop should be allowed to remain on the

plant, as a redundancy of either has a tendency to delay the ripening of the fruit, which it is necessary to mature as soon as possible, so as to escape the early frosts, which are injurious to most of our cultivated varieties. One of the most successful growers in this section it is understood took twelve first prizes and two second out of a possible fourteen, at the Montreal exhibition last September. The same gentleman has visited exhibitions in Toronto with nearly as great success. This demonstrates that the vicinity of Ottawa is quite equal if not superior to any other part of the Dominion, either east or west, for the growth of this delicious fruit. It is believed that the best localities for the vine have not yet been brought into cultivation; the rocky foothills and upper southern slopes of the Chelsea mountains, near Ottawa, contain many hundreds of acres which though unfitted for cereal crops, owing to the rocky nature of the soil, might by careful selection and terracing, be found most suitable for vineyards.

It is understood that several gentlemen have purchased and planted, or are about to plant extensive vineyards close to the city; but there is no reason why any good situation convenient to a railway should not be quite as favorable for market purposes.

One thing is very evident, that the rapid extension of the vine will lead to the production of wines here, as has been the case about Toronto, Hamilton, and other western cities. This however is not looked upon as an unmixed evil, as it is generally conceded that the population of vine-growing countries are amongst the soberest of nations. Within the past few weeks a cablegram has been received from France, stating that a meeting has been held at Bordeaux, at which the Mayor was present, for the purpose of forming a syndicate, with the view of transferring to Canada some of the wine establishments so largely carried on in that country—the ravages of the *Phyloxera* being so serious that the cultivation of the vine is becoming year by year more difficult. It appears that this insect does not attack the roots of the native American grape; and some experiments have been made by importing the Canadian wild fruit seeds, and grafting the seedlings raised from them with the wine-producing plants; but although the grape is one of the easiest woods to graft below the soil, it does not readily unite when the operation is performed above ground; the consequence is, the scion takes root, and being a stronger grower than the native, the ends sought to be obtained are found abortive;

and it is now decided to examine the Canadian grape with the view of seeing what can be done with them by applying the accrued wisdom and experience of the French vintners to their manufacture into wine. The speedy prospect of Ottawa being a great railway centre ; her easy access to the head of tide-water by the Quebec, Montreal and Ottawa Occidental Railway or other easterly route, would point to this locality as a desirable point to direct the attention of the French delegates when they come to "spy out the land," which will probably be the case next spring. And it is trusted that the Governments of Ontario and Quebec, and the Dominion will all three unite in placing matters in a proper light before them, at the same time securing the most suitable guides to show them over the country, and advise them as to the best localities for future operations.

The French Commissioners were favorably impressed at the Philadelphia Exhibition in 1876, with the grapes there displayed by the Fruit Growers' Association of Ontario, although these specimens passed over several hundred miles of railway during exceedingly hot weather. The fruit would have been much more attractive had it been seen on the vines at the points where grown.

The writer is well acquainted with many of the grape growers around Ottawa, and he has yet to learn of a single instance of any of them who have failed in securing good paying crops where ordinary skill and intelligence have been exercised ; at the same time, ninety-nine out of every hundred engaged in the business are extending their plantations, and securing as far as possible any new or other varieties for trial which they do not possess, whilst others are rushing enthusiastically into the field to add their quota to this new yet fascinating Canadian enterprise.

Every year brings forth new and sometimes better varieties ; these are being produced by our Canadian and American hybridists, so that the grape list is being constantly extended and improved, both in quality and earliness of ripening. This leads one to the conclusion that the possibilities of grape culture on this continent, and more especially in this section, are practically unlimited ; and it is predicted that our vineyards before fifty years, perhaps twenty, will rival those of sunny Italy or La Belle France, and wherever either farm cottages or suburban residences are dotted over the land, the vine will be found as one of the necessary accompaniments of health and civilization.

The business of shipping grapes in the fresh state to the markets of Britain has not yet been attempted, but when this fruit becomes more plentiful, and as shipping facilities are more extended and rapid, shippers will not lose sight of this branch of the grape industry.

THE POCKLINGTON GRAPE.

DISCUSSION AT THE MEETING OF THE AMERICAN POMOLOGICAL SOCIETY, IN
BOSTON, SEPTEMBER, 1881.

George A. Stone, of Rochester, N.Y., said: As most of you know, the Pocklington originated at Sandy Hill, Washington county, N. Y., not supposed to be a grape section. As it is grown in Rochester on light soil, I think it ripens a little earlier than the Concord. This year the Concord did not set well where the Pocklington set very perfectly. In fact the vines were overloaded. In quality we claim that it is as good as the Concord in its best state. The growth of the vine is good, but it cannot be called an extra free grower. I have not discovered any mildew or any disordered condition. Its cropping quality certainly is all that can be asked. It will bear as many grapes as any other variety, and mature them. I think it is a very promising new grape for vineyard planting.

H. E. Hooker, of Rochester, N.Y., says: I think Mr. Stone has very accurately described the appearance and condition of the Pocklington in Rochester. The vines most exposed to the weather seemed to maintain a perfectly healthy foliage, so I think there can be no question about its being ironclad in respect of foliage. Last season I saw the Pocklington fully ripe at Rochester, and was very agreeably disappointed in its quality. It was to my taste fully as good, sweeter, and a little more sprightly than the Concord.

The President: What time last year?

H. E. Hooker: It ripened fully as early as the Concord on the adjoining vines. It was September 16th. Last year was a pretty early season. It is not to be classed with the earliest grapes, but sufficiently early for all practical purposes, in any locality for market. It is certainly remarkable for the number of handsome bunches produced on a vine. I think it is not claimed for it that its quality is of the highest excellence, but it is what would be called very good for quality.

T. S. Hubbard, of N.Y.: I was in the vineyard at Rochester four or five weeks ago, and it certainly was a very fine show of Pocklingtons, the first year of bearing. I was agreeably disappointed in seeing them. The vines looked very well, were making a good growth, and the fruit all that could be asked. I have some vines growing the second year that are very healthy, not as vigorous in growth as the Concord, but fair growers.

George W. Campbell, of Ohio: My experience agrees with that of Mr. Hubbard.

The President, M. P. Wilder, of Boston : I had fruit sent to me twice last year from the original vines, and I was surprised at its beauty. You may recollect that in my address I alluded to it in connection with the wonderful effect of hybridization, whether by the hand of man, by insects, or by the air. I say that the Pocklington may be the beginning of a race of grapes equal in beauty and perhaps in excellence to the Cannon Hall Muscat. I think it is a most promising variety, and although I would like to ameliorate the flavor of the Pocklington a little, still it is a wonder in its way.

REPORT ON FRUITS.

Henry Paffard, Esq., Niagara, writes : " I have not fruited the Burnet Grape yet, but expect to do so next season. Until last year I did not find it a free grower, when it made rapid progress. It is too soon to say anything about the Diadem Raspberry, sent out last year. That welcome visitor, the HORTICULTURIST, is received regularly, and will assist in keeping alive an interest in horticultural matters, a work that your valuable Association is doing so much to promote."

THE GREENFIELD PLUM.

The following description of this plum is from Mr. A. Gilchrist, Guelph :

" The plum came to hand in good order, and was much larger than I expected, quite the size of a well-grown Lombard, as far as I could judge. Fruit medium ; color yellow, nearly covered with light crimson ; suture shallow, roundish oval ; stalk about one inch long, slender, in a narrow cavity ; flesh yellow, coarse grained, juicy, being more acid under the skin. Cannot judge of the quality, as it was not in condition ; parts freely from the stone. I have no doubt it will prove valuable in the North-west."

This plum, it is claimed originated with Mr. Greenfield, of Ottawa, Ont. The tree has the style of growth and foliage of the Chickasaw plum. Your Editor has never seen the fruit. Mr. P. E. Bucke says that the tree is perfectly hardy at Ottawa.

REPORT ON PLANTS RECEIVED.

William Gray, Woodstock, Ont., writes : The Downing Gooseberry is a great success, free from mildew. The raspberry and strawberry plants received two years ago were a failure. My Flemish Beauty Pear is fine ; the tree fruited last year, doing well ; also the Clapp's Favorite Pear, which has fruited the last two years. The first year I allowed the fruit to ripen on the tree, which proved to be almost useless—rotted at the core, taste insipid. This season I picked the fruit as soon as it parted freely from the branch, and kept it for about one week in the house. A better

pear I could not wish. Grimes' Golden Pippin Apple did not grow. Glass' Seedling Plum is growing fast, and is a very fine tree. It has fruited the last two years, but I cannot say much in its favor, I have so many other varieties that are much better. My Burnet Grape has not fruited yet. The raspberry I got from the Association last spring made a growth of five or six feet. I have given all the trees and plants a fair trial, and nearly all have been satisfactory. My soil is a very heavy loam, hard clay bottom, well drained and fed.

WINE MAKING.

A few words in answer to the inquiries of John Knowlson, Lindsay, about wine making. The method adopted by myself in making my own wine, which is pronounced very good by those who have tasted it, is as follows: As soon as the grapes are ripe, pick them carefully and clean from leaves or dirt. Reject all unripe or damaged fruit. Keep the fruit in a cool, dry, airy place for a few days. Then run them through a mill, and press them so as to abstract all the juice. Strain it into wood, stone or glass vessels. Glass carboys, holding 12 or 13 gallons, are very good. If the fruit is acid, put from one-half to one pound of sugar per gallon; let it ferment say from one to three weeks—you must be your own judge as to the time. Then put it away in your cellar and leave it until the next spring; draw off and bottle. You can sweeten to your taste, but I think you will find it sweet enough. I have always succeeded in the way mentioned, and have made yearly from 12 to 20 gallons, enough for myself and some to give to my neighbors in sickness or otherwise. I have some that is seven or eight years old. It is not really ripe until five years of age, and then it is fit for a king. Some will say it is too long to wait. I answer, if you want anything good, you must abide the time necessary for it to mature.

FIG CULTURE.

Dr. G. F. Needham, of Washington, D.C., writes: Last September I received an enthusiastic letter from Mr. Thomas D. Lloyd, of Barrie, Ont., from which please allow me, for the benefit of your readers, to make a brief quotation:

"In the spring of this year I received from you 12 young fig trees. Ten of them have grown from two to three feet, with several branches, and to my surprise are already producing fruit."

I would be delighted to send my pamphlet, "Fig Culture," to any address enclosing 10 cents. The whole subject of fig culture, and how to preserve the fruit for home use and the markets, is plainly discussed. The *California Farmer* says of my little treatise: "Very valuable, and everybody should have it."

THE ROT IN TOMATOES.

Our thanks are due to Mr. W. E. Wellington, of the firm of Morris Stone & Wellington, for a copy of the *Gardeners' Chronicle*, Nov. 12th 1881, from which we copy the following paper on the Fungoid Diseases of the Tomato, by Charles D. Plowright, King's Lynn, England. This paper will probably fully answer the inquiry of Mr. Thomas Coates, in the November number :

During the autumn of last year (1880) I carried on a series of investigations concerning the various fungi which deleteriously affect the Tomato, having the opportunity of examining any and every diseased specimen of Tomato which occurred in a large Tomato growing establishment near King's Lynn.

Tomatos grown in the open air in this country are a very uncertain crop, sometimes proving a very profitable venture, but not unfrequently the reverse. The Tomato disease is almost as well known to gardeners, and as much dreaded by them, as the Potato disease is. A very large number of outdoor diseased Tomatos were examined by me last year. The appearance of diseased Tomatos is so well known that it is almost unnecessary to give any description of it beyond stating that they have a peculiar bruised look, and are more or less mottled with black or dark brown patches of disease. These patches increase in size after the fruit has been gathered to such an extent as to render it valueless. If the Tomato be examined in this state he must indeed be an acute mycologist who could demonstrate the fungus which has caused the disease, for, bearing a few hyaline mycelial tubes permeating the substance of the fruit in and towards the margins of the spots, nothing adventitious can be detected. At any rate, I was quite unable to find any perfect fungus upon the numerous specimens I then examined which could with certainty be credited with causing the mischief. This is not to be wondered at when it is remembered how rarely we are able to discover the perfect *Peronospora infestans* upon the diseased tubers of the Potato. On September 10 of this year a specimen of a typically diseased Tomato was brought to me with the information that although the Tomato was diseased the plant which had produced it was healthy. I at once visited the spot and examined the plant in question. Sure enough the Tomatos on it were diseased to a large extent, but the plant looked healthy. A few dead-looking spots were observed upon the lower leaves, which were examined with a pocket lens, but not very thoroughly, as it was raining at the time. When, however, these dead-looking spots were examined microscopically, they were found to be due to the presence of *Peronospora infestans*. The fungus was not producing its conidiophores very abundantly, but still there it was without doubt. The central portion of the spots where the *Peronospora* first made its appearance were now nearly free from it, it being more or less confined to the circumferential portions of the spots. The appearance of these spots was quite unlike the spots produced by the same fungus upon the Potato

leaf. On the Tomato leaf the spots lack the black rotting look which is so characteristic of the Potato disease. The Tomato leaf is larger and harder, so that instead of putrefying it rather dries up; the spots themselves look more like the sun-scalds one sees upon the leaves of plants grown under glass. After diseased Tomatos have been gathered a short time decomposition rapidly sets in, and they then harbor an incredible quantity of fungi. But as these fungi are, as a rule, only such as are found upon almost all decomposing vegetable matter, it is useless to enumerate them. One species, however, seems to me worthy of special note, as when it appeared upon a Tomato the latter underwent very rapid decomposition. The fungus is, I believe, an undescribed species of *Sphæronema*; it may be thus described:—

Sphæronema lycopersici, n. sp.—Perithecia minute, spherical, arranged somewhat concentrically upon the surface of diseased Tomatos. Each perithecium surmounted by a dirty flesh-colored globule of spores. Spores minute, cylindrical, or somewhat sausage-shaped, hyaline, either with or without nuclei. On outdoor Tomatos, Clenchwarton, King's Lynn, Oct., 1880. Perithecia about 150 mk. in diameter. Spores 10 by 2—3 mk.

The diseases of the Tomato to which I have given most attention, however have been those peculiar to fruit grown under glass. It is worthy of remark that the *Peronospora* disease does not occur under these conditions; at least if it ever does do so it is very uncommon.

The first and most important disease to which I would call attention is of frequent occurrence, and may be termed for distinction's sake the "black spot." It makes its appearance usually (but not invariably) upon the green Tomato as a circumscribed brownish spot of no great size upon the crown of the fruit, usually near the remains of the style. As the Tomato ripens the spot has a whitish hue from the semitransparent dead cuticle of the fruit, which is at this time unaffected with any fungus growth, being simply dead. Specimens of this disease have been submitted to more than one horticultural journal, and pronounced to be "sun-scalds." This, however, they cannot be, for the spots of disease are upon the crown of the fruit, which hangs downwards, so that any sun-scald would be upon the base of the fruit, which is uppermost. I have seen numerous specimens *in situ*, and can therefore speak positively upon this point, as it might be suggested that the primary lesion was due to a burn, and that the fungus afterwards attached itself to the injured spot. As the Tomato ripens and assumes the beautiful red color of maturity, the spot, which varies in size from 3 to 10 millimetres, acquires a jet-black color. If a section be now made through it, it will be found that this blackness extends inwards towards the centre of the fruit, to a much greater extent than is apparent from the exterior. It is distinctly defined and harder than the parenchyma of the fruit. If a portion of this black substance be examined microscopically, it is found to consist of an assemblage of black mycelium compacted pretty closely together, having the appearance of the mycelium of the Dematiaci or black moulds. Upon the upper surface—the black spot—four fungi are found; one a true black mould, the other three polymorphic states of a *Phoma*. The black mould may be thus described:—

Sporocybe lycopersici, n. sp.—Tufts olive-green, flocci erect, twice or thrice septate, about 5 mk. in diameter. Heads terminal globose, 20—30 mk. across. Spores numerous, sub-globose or ovate, black, 3 mk. long.

The Phoma is preceded by conidia and microconidia.

CONIDIA: *Cladosporium lycopersici*.—Hypa tufted, septate, irregular in outline at their apices, springing by their bases from a black spot; compacted mycelium, spores abundant, cylindrical, black, 1—3 septate, slightly pointed at their extremities; 10—30 mk. long, by 8—10 mk. wide.

MACRO-CONIDIA: *Macrosporium lycopersici*.—Flocci, well developed, black, septate, somewhat flexuous, producing abundantly sooty-black irregular pyriform to sub-quadrate muriform spores, which vary in size from 10—70 mk. long, by 10—20 mk. wide.

STYLOSPORES: *Phoma destructiva*.—Perithecia carbonaceous, minute, globose, spherical clustered spores, hyaline, oval, cylindrical, binucleate, 5—6 mk. long, by 1.5—1 mk. wide.

Another disease which sometimes but much more rarely attacks Tomatos while still growing is due to a *Dactylium* very closely allied to, if not identical with, *D. roseum*, B., from which it differs in producing its spores in threes, and in growing parasitically upon a living plant. This disease seems more especially to affect that variety of Tomato known to gardeners as the Trophy, and commences upon the base of fruit, near the attachment of the stalk.

Dactylium lycopersici.—Forming a dense floccose whitish pink mass. spores hyaline, with a tinge of pink, oval or ovato pyriform, uniseptate, often apiculate, produced in threes upon the terminal extremities of erect sparsely septate hyaline hyphæ.

APPLES IN COLD CLIMATES.

Orchardists living in the colder parts of Canada will be greatly interested in the following valuable article, contributed to the *Rural New Yorker* by Dr. T. H. Hoskins, of Vermont:

My orchard is on the shores of Lake Memphremagog, six miles south of the international boundary line, in latitude 45 degrees north, and is elevated 750 feet above the sea level. This territory lies fully open to the sweep of polar waves of low temperature, and there are no winters in which our thermometers do not frequently register temperatures lower than minus 30 degrees. Fifteen years ago when I began to plant an orchard, it was believed to be impossible to grow any kind of apples except the Siberian crabs in this section of Vermont and the adjoining parts of Canada. Many thousands of dollars had been expended in vain by our people for the purchase of fruit trees from southern New England and Central New York. It has been proved at a heavy cost that the standard apples of the great apple regions to the south and west of us cannot be grown here. So far as I am aware, no tree of the Baldwin, Rhode Island Greening, or Rox-

bury Russet ever lived to reach bearing age in North-Eastern Vermont. Even such hardy kinds as Westfield Seek-no-Further, Blue Pearmain, Tolman Sweet, Fameuse, and Red Astrachan, succeed only locally and precariously, so that they cannot be grown profitably for market.

The task which I set myself fifteen years ago was to test every hardy sort I could hear of and obtain, in order to see whether varieties did exist which could be planted here and in similar exposed localities with security. I have accomplished the work, after testing over 250 varieties, collected from the coldest localities in America. The result is that this part of New England, from having not a single variety of apple (outside of the crabs) which the people had confidence to plant, is now rapidly becoming a region of orchards unsurpassed in any part of the country for vigor or fruitfulness.

TOO TENDER.

In the first place I will give a mere list of the varieties which have been utterly "wiped out" by Jack Frost. These embrace the Williams' Favorite, Yellow Bellflower, Black Oxford, American Summer Pearmain, Red Canada (not a Canadian apple, notwithstanding the name), Morgan Sweet, McClellan, Grimes' Golden, Gravenstein, Granite Beauty, Fairbanks, Ramsdell Sweet, Canada Reinette (not grown in Lower Canada to any extent), Franklin Sweet, Fall Orange, Summer Hagloose, Colvert, Munson Sweet, Golden Sweet, Jewett's Fine Red, Fall Pippin, Moses Wood, Minkier, Mamie Cathead, Cooper's Market, Yellow Ingestrie, Whitney Russet, besides quite a number "not in books." It will be noticed that there are many sweet apples in this list. My experience is that, as a rule, this class of apples is more tender than others. There are very few to be found in the Province of Quebec; so few, indeed, that the people have no taste for them, and they are not saleable in the markets of the large towns. Now come the

"ALMOST HARDY,"

the most vexatious of all, because they neither thrive nor die. Some of them, indeed, do tolerably in favored spots, but none will do to plant extensively with a view to profit.

ST. LAWRENCE.—Around the city of Montreal and on the hills which rise out of the flat country between Lake Champlain and the St. Lawrence River, this beautiful and excellent Fall apple is productive and profitable. It is doubtless a Fameuse seedling (as so many of the Lower Canadian apples are), having a similar flavor and the same snowy-white flesh. Very few of these Fameuse seedlings do well in the more elevated country. Both parent and progeny develop the vice—inherent in them, but little seen under the more favorable conditions—of spotting, and to this the St. Lawrence adds cracking and shy bearing, together with some tenderness of tree. Not profitable here.

RED ASTRACHAN.—Tree tender; fruit smaller and less fair than in more favorable places. Not profitable.

FAMEUSE.—Bears young and well, but the fruit is not so large or so fair as at Montreal or the Champlain Valley, and the tree is plainly tender. Profitable, yet not safe to plant extensively.

BEN DAVIS.—Tree tender and short lived ; fruit hardly "good" elsewhere, and no better here. Though a free bearer, not profitable.

POMME GRISE.—Tree tender, fruit small and knurly; not profitable, though the quality is fine.

NORTHERN SPY.—In protected spots this noble variety sometimes succeeds here as well as anywhere in the country. Our Spys took the first premium at the State Fair this fall. Nevertheless the tree is too tender.

RIEBSTON PIPPIN.—Living at a poor, dying rate, it still bears well and bears fine fruit ; but after a few years' struggle gives up the ghost.

FALL WINESAP OF THE WEST.—A good little apple, just now (November) in eating, but the tree is not hardier than Ben Davis, and is not productive.

SAXTON STRIPE.—A fine flavored October apple ; tree productive, but tender, and soon falls into a decline ending in death.

EARLY JOE.—Struggles along and bears some fruit, but survives only in an unhealthy state.

JONATHAN.—In the same category with Early Joe—the more's the pity.

SOPS OF WINE.—The most successful of those not entirely so. The tree suffers from the winter, yet bears good crops and seems to get hardier with age.

TOLMAN SWEET.—This variety grows thriftily and bears well, and one would not for several years suspect it of wanting hardiness ; but when it comes to full bearing, unless carefully propped up, it breaks down all round, and the breaks invariably reveal a rotten interior, with only a skin of healthy wood. Sorry to have to give up this excellent winter sweet. These two lists of complete and partial failures might be considerably prolonged did space permit. I have given only the varieties best known and likely to be tried by others similarly situated.

HARDY AND GOOD.

The more pleasant list of kinds that have proved successful in point of hardiness and quality of fruit embraces also a considerable number of varieties. From these I select the best of those which add productiveness and general thrift to the first named qualities, as follows :

TETOFISKY.—With all its merits this apple has the fault of dropping a considerable part of its crop before it is ripe. Not recommended for market on that account.

YELLOW TRANSPARENT.—Of the same season (August) as Tetofsky ; beautiful, very good, exceedingly productive, does not drop. Transports well for a summer apple.

DUCHESS OF OLDENBURG.—It is hardly necessary to praise this large, early-bearing, handsome, and heavy-bearing September apple. Its only moderate quality is its sole defect, yet no apple of its season is more marketable or more profitable. It can be grown much more cheaply than potatoes, and never brings so low a price here. Still it is possible to have too many of an early apple, unless you are prepared to evaporate them.

WEALTHY.—This is the king of all the hardy apples. As productive, hardy, early-bearing, large and beautiful as the Duchess, it, in this region,

keeps well until March, and outsells Baldwin or any apple brought here from the south.

MAGOG RED STREAK.—If it were not for the Wealthy, this would stand at the head of our Winter apples. It is large, handsome, and a good keeper until April. The tree is hardy, thrifty, and a profuse bearer, but the fruit has too little red to compete with the splendid Wealthy as a market apple. And yet it is styled in the report of the Iowa Horticultural Society, "the beautiful Magog Red Streak."

SCOTT'S WINTER.—This is the apple which well replaces, for us, the Roxbury Russet of a milder clime. It is of medium size, heavily striped, and sometimes covered with red. It is "hard as a rock" until April—sour, and only useful for cooking. As the warmth of Spring begins to reach it, it mellows, becomes mild, aromatic, and far better in quality for dessert than the Roxbury Russet. The tree is a true "iron-clad," a profuse bearer on alternate years, with a good crop in intermediate seasons. In my orchard of 1,400 trees, the Wealthy and Scott head the list—400 of each. The Scott keeps well into July, and not only keeps, but keeps fresh and crisp, with almost no loss, when properly handled and stored.

RENEWING STRAWBERRY BEDS.

BY OUR MEMBER IN ENGLAND.

I have just all but finished my planting on the principle of dividing the branch or clump into separate heads or crowns, and choosing the best of them for replanting. My two beds or borders are, one just 100 feet long by 12 wide, taking, at 2 feet apart each way, just 300 plants; the other is half the width, 6 feet by a length of about 150; I have not measured it, and therefore having 225 plants, so that I have in all over 500 plants—a pretty little lot for a small garden. The idea of planting this way was quite new to me when I first read of it this summer, but it commended itself to me at once, and my little experience in the planting has fully confirmed my favorable impressions. In the first place the saving of trouble is so great that it is like expunging that word out of the sentence altogether, and instead of giving up the growing of strawberries on account of the trouble, I feel now as if I should not mind if the replanting was a matter of course every year. Now as regards the efficacy or sufficiency of this mode, I cannot see any reason for doubting it. I find, after doing all the manipulation myself, my man only digging the ground (two spades deep) that every crown or head in the clump is to all intents and purposes a new plant of this year's growth, springing like a bud out of the old sort, which

it appears to me is the only part of the plant that gets old—just like rhubarb. I believe from all my examinations and observation that the crowns which constituted the foliage of the plant and bore the fruit last season perished when they had done their duty for that year, and gave place to a new growth of buds out of the old root. Each one of these seems to me as completely a new plant as those from the runners, with the difference that they are a generation older, being the parents of the runners, but still both coming into existence the same year. So completely is each crown an entirely new plant, that after having derived its subsistence from the root from which it springs during its infancy, as soon as matured and having put forth fruit and runners, strikes out its own fibrous roots at its base and junction with the old root, which done it is independent and draws only on its own roots. In separating these crowns, I get in each one a complete new plant, with its fibrous roots, just like the new runner, only a generation older and better established—fitter, I should say, than the runner to bear a full crop next summer, but of course being further advanced, must grow itself and fail first. I conclude, therefore, that this system of replanting should be repeated every two years, so as not to let the plants get dependant on a foundation of old roots, or get, as they do when left to themselves, so thickly clustered that they have not, and cannot have, the necessary aid and freedom to grow to perfection, but on the contrary degenerate until they at last grow barren and die. My theory is that if I did not divide these crowns, their cones, so to speak, would during the autumn and winter go to form an addition to the mass of old root, their tops of course decaying, and new buds would spring out in their place, to form the crowns and bear the fruit next year. When I see the result next year and reap the fruit I shall know more about it.

THE DEMPSEY POTATO.—Mr. J. Mather, of Keewatin Mills, North West Territory, states that from his pound of the Dempsey potato he obtained eighty-one pounds, and that the smallest was as large as a goose egg. The potato was in every respect a decided acquisition, and superior to any other variety he had.

BURNET GRAPE IN THE PROVINCE OF QUEBEC.—My Burnet Grape fruited this year for the first time; it had only two bunches ripe about the end of September. The flavor is very fine—beats all others I have. J. W. CUMMING, *St. Hilaire, P. Q.*

PLANT YOUNG TREES.

Among farmers generally there seems to be a prevailing idea that large trees are best for planting. At least, in ordering, a great majority of the farmers who buy to plant order large trees, which choice I believe to result more from custom than any other cause, and it would be to the farmer's interest in selecting the size to plant, to give this subject more consideration than is generally given.

In planting on the farm what advantages over small trees can be claimed for the larger ones? Not any. If small trees are planted properly, and for the first two years are given a little extra care and cultivation, they will, in every case make finer and better trees, a much handsomer, more valuable and durable orchard than the larger.

Large trees lose in removal, besides the greater part of the tap root, about one half or more of their most valuable roots, consequently leaving the tops too large in proportion to the amount of root, the evaporating surface far greater than the absorbing, and when planted, even though the buds swell and apparently begin to grow, they may soon wither and die from not having sufficient root to furnish the needed fresh supply of nourishment.

The condition of the trees may be bettered somewhat by cutting back, but even then their vigor will be greatly impaired, and they can never equal in thriftiness of growth the smaller trees with roots and tops entire. Large trees are apt to become leaning, crooked or unhealthy from being blown about or shaken by the wind.

With small trees the case is far different, just the reverse in every particular—they have every advantage over the large. At the nursery they cost less; if procured from a distance the freight charges are less, besides being more easily handled and planted. They are surer to grow, for having roots that are not mutilated, almost entire, and proportionate to the size of the tops, they will become established at once and grow; and then making nearly the whole of their growth upon the ground on which they are to remain, they soon become acclimated and perfectly adapted to the soil and location, making more stocky and healthy trees. And now, with all these advantages in favor of the smaller trees, besides the testimony and experience of all the most successful orchardists and large planters, is it not more advantageous to plant young trees?—E. L. WALKER, in *Farmers' Home Journal*.

FLOWERS.—Show us the person who loves flowers, and we will show you one that has a warm heart, that gushes forth joy to those around. It may be hid beneath a rough exterior, but like the unsightly rock, which, when broken open has gems inside that sparkle and dazzle the eye.

Don't pass through this world as though it was made for you, and use it for the one selfish, sordid motive, to make money and hoard it away. Work to please others—try to make your home beautiful and attractive. Don't repress the ardour of your children if their taste runs to "fixing up" the old birthplace.

